# Effects of Expressed Emotion on Psychosocial Well-being of People with Psychotic Disorders and Their Relatives

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Abstract of thesis entitled:
Effects of expressed emotion on the psychosocial well-being of people with psychotic disorders and their relatives
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This study examined the effects of relatives' expressed emotion on the psychosocial well-being of people with psychotic disorders (PPD) and the relatives themselves. Eighty pairs of PPD and their relatives were interviewed individually. Relatives' expressed emotion (EE) (criticism (CC), hostility, emotional over-involvement (EOI), warmth and positive remarks) towards the PPD as well as their own life satisfaction were assessed. The PPD were interviewed about their empowerment, life satisfaction, and psychiatric symptoms. Path analysis results showed that EE was associated with the level of PPD's empowerment, psychiatric symptoms and life satisfaction as well as the relatives' life satisfaction. Furthermore, only negative EE was found to predict life satisfaction in the relatives themselves while only positive EE was found to predict psychiatric symptoms in PPD. Psychiatric symptoms and empowerment in PPD as well as relatives' life satisfaction were the mediators between EE and PPD's life satisfaction. In addition, self-report EE measures and revised FMSS tapping the five components of EE obtained acceptable reliabilities and predictive validities. These findings signified the importance of family involvement in the recovery process of people with psychotic disorders and suggested that self-report EE measures might be better means to assess relatives' EE in large-scale studies in Hong Kong.

# 摘要

本研究主要探討親屬的情感表達對患有精神失常家人和親屬自己的心理健康之影響。是次研究單獨採訪了八十對精神失常人士和他們的家屬。採訪員除了對親人之情感表達，包括批評、敵意、情緒過度介入、溫暖和讚賞以及他們自己的生活滿意度進行了評估，也評估了精神失常人士的活力化，生活滿意度，及精神症狀。分析結果表明，親屬的情感表達的程度是與精神失常人士的活力化，精神症狀和生活滿意度，以及親人自己的生活滿意度相關聯的。此外，結果亦發現只有負面的親屬情感表達對親屬本身之生活滿意度有壞的影響，而只有正面的親屬情感表達被發現對患有精神失常家人的精神病症狀有良好的影響。並且，研究亦顯示，精神失常人士的活力化和精神症狀以及親屬的生活滿意度是親屬的情感表達與患有精神失常家人的生活滿意度之間的中介變數。另外，數據亦顯示，用以評估親屬情感表達的問卷及訪問兩種方法都獲得良好的可靠度和預測效度。這些發現不但意味著家庭參與對精神疾病復元過程的重要性，而且還顯示出在香港的大型研究，問卷形式可能是更好的方法去評估親屬的情感表達。

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## Psychotic Disorders

Psychotic disorders including schizophrenia are chronic mental illnesses affecting about 1% of the world population (APA, 2000). The age of onset was about 19 years old (Davis & Schultz, 1998) and the adult relapse rates for these disorders were 22% in 6 months, 36% to 48% in a year, 54% in 2 years, 80% in 5 years, and 86% in 7 years (Colenda & Hamer, 1989; Friis et al., 1991; Muller, 2004; Parker & Hadzi-Pavlovic, 1995). The symptoms and relapses do not only affect the people with psychotic disorders (PPD) themselves in terms of daily functioning (Earnst & Kring, 1997; Moller, 2007), capacity of attention (Nuechterlein, 1991), and life satisfaction (Browne et al., 1996; Dickerson et al., 1998) but also their caregivers or relatives because of the burden experienced in care-giving (Bloch et al., 1995; Stueve, Vine & Struening, 1997). Therefore, symptoms management has been one of the major treatment goals for these people.

For long, pharmacotherapy has been found effective in managing positive symptoms such as hallucinations and delusions, disorganized speech, and thought disorder (Silverstone & Turner, 1995). However, it was found that negative symptoms, including withdrawal from social experiences potentially leading to further social functioning difficulties, were unresponsive to medication (Buckley & Stahl, 2007); whereas previous studies (King & Dixon, 1996; O'Brien et al., 2006) found that family factors helped enhance the social functioning in PPD and adolescents who were at imminent risk for onset of psychosis. These findings suggested that other than medication, family also played an important role in the course of illness of PPD. More importantly, family intervention might be more useful than pharmacotherapy in reducing negative symptoms and even more cost-effective to reduce relapses in those people (McFarlane, 1994).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
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**Expressed Emotion and Relapse of Psychotic Disorders**

In the last few decades, expressed emotion (EE) was found to predict negative clinical outcomes among people with mental illness (e.g. Butzlaff & Hooley, 1998; Hooley, 1998). In 1960s, EE was developed by George Brown, a British sociologist to measure the family environment of a range of disorders such as schizophrenia and mood disorders. Unlike as it is termed, EE is not emotion expression but the attitudes, feelings and behaviors of the relatives expressed towards the family members with mental illness (Barrowclough & Hooley, 2003). This construct includes five components: 1) *emotional over-involvement* (EOI), that characterizes dramatization, emotionality, self-sacrifice, devoted and protective behaviors towards PPD; 2) *criticism* (CC), that refers to dislike, disapproval, or clear resentment about PPD's behaviors and characteristics; 3) *positive remarks*, that refer to praise, approval, and positive comments about PPD; 4) *warmth*, that refers to spontaneity, sympathy, empathy, and interest shown when talking to PPD; and 5) *hostility*, that refers to the generalized criticisms and rejecting attitudes towards PPD.

Assessed by CFI or FMS, the negative dimension of EE construct, which consists of the relatives' criticism (CC), hostility, and emotional overinvolvement (EOI) towards the PPD, is found to be a well-validated risk factor of relapse in the PPD in both cross-sectional and longitudinal studies across cultures including those who were British (Brown, Birley, & Wing, 1972; Hashemi & Cochrane, 1999); Swedish adolescents with psychosis (Jarbin, Grawe, & Hansson, 2000); and Asians, including Chinese (Ng, Mui, Cheung & Leung, 2001), Japanese (Tanaka, Mino, & Inoue, 1995), and Indians (Leff et al., 1987), etc..

For instance, Marom and colleagues (2005) conducted a longitudinal study investigating the predictive ability of expressed emotion in Israeli schizophrenia patients. One hundred and eight patients were followed for 7 years and results showed that those with high critical families had higher rates of rehospitalization. Also, Butzlaff and Hooley (1998)'s

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meta-analysis found a moderate association (r=.31) between negative EE and relapse in patients with schizophrenia. Another study done by Jarbin and colleagues which followed Swedish patients with psychotic disorders for two years also found similar results. As to the Asian studies, Ng and colleagues (2001) conducted a 9-month longitudinal study investigating the predictive validity of EE construct for relapse in thirty three Hong Kong Chinese adults with psychotic disorders. It was found that the negative EE component, criticism, significantly predicted relapse rate in those people. Another cohort study by Tanaka and colleagues (1995) followed seventy nine Japanese patients with schizophrenia for 9 months also found that the relapse rate for those with high negative EE families was significantly higher than those with low negative EE families. Moreover, cross-sectional studies found similar results. For example, Barrowclough and colleagues (2003) examined the relationship between self-evaluation, expressed emotion and symptomatology in fifty nine PPD. It was revealed that critical comments, hostility as well as warmth expressed towards PPD were significantly associated with negative symptoms assessed by Positive and Negative Symptom Scale (PANSS).

**Positive Expressed Emotion Components**

Although EE has been one of the most studied psychosocial constructs in psychiatric literature for decades, previous studies of EE have focused primarily on the risk factors of relapses (CC, hostility and EOI). This indicated that the effects of the positive dimension of EE (positive remarks and warmth), which is a potential protective factor against relapse (Lopez et al., 2004) as well as other aspects (i.e. quality of life) of PPD, has been neglected. Specifically, studies investigating the effects of relatives' positive remarks and warmth were scarce and previous findings were inconsistent.

Of the few studies investigating the positive dimension of EE, Lopez and colleagues (2004) interviewed 98 key relatives including parents, spouses, siblings or other relatives and

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98 people with schizophrenia who were either European or Mexican Americans using CFI. Families' warmth were found to be significantly and negatively related to relapse in Mexican Americans. This finding suggested that the more warmth the relatives expressed the lower rate of relapse in the PPD. Similarly, three empirical studies found that Italian PPD (Bertrando et al., 1992); Indian ones (Leff et al., 1990) and Serbian ones (Ivanovic, Vuletic, & Bebbington, 1994) were less likely to relapse when they returned to the households high in warmth than when they returned to those low in warmth.

However, one study by Bensten and colleagues (1998) in Norway found that relatives' emotional warmth was not significantly related to PPD's symptoms, which was assessed by the Positive and Negative Syndrome Scale (PANSS). In addition, a longitudinal study by O'Brien and colleagues (2006) examining the effects of all five components of EE on psychiatric symptoms and social functioning in a sample consisted of a majority of Caucasian adolescents who were at imminent risk for onset of psychosis found similar results. Results showed that caregivers' positive remarks and warmth at baseline were not associated with the psychiatric symptoms but both were associated with the improvement in social functioning of those adolescents at follow-up. However, social functioning was only assessed by one item asking the participants "how often do you meet with your friends?", which might be insufficient in explaining the whole picture of social functioning.

Most of the time, positive EE components were neglected in the studies pertaining to EE in the Chinese population (Arthur & NRG, 2002; Bhurgra & McKenzie, 2003; Li & Arthur, 2005; Ng et al., 2001; Philips & Xiong, 1995; Xu, Weng, & Guo, 2000). For instance, Ng and colleagues (2001) conducted a longitudinal study investigating the predictive validity of EE construct for relapse in Hong Kong Chinese adults with psychotic disorders. Results only focused on how the negative components of EE (CC, hostility and EOI) in predicting the relapse rate while the positive components were neglected. Another longitudinal study

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conducted by Philips and Xiong (1995) in Mainland China, that examined the predictive power of CFI, also focused on the relationship between negative EE and relapse after discharge. Since there is also empirical evidence showing that warmth and positive remarks have positive effects on the PPD in terms of symptom management and social functioning, it is at least equally important to examine how pro-social family functioning may serve to buffer relapse and psychosocial well-being in these people. Further research on the positive dimensions of EE (both positive remarks and warmth) especially in the Chinese population is thus warranted.

**Assessment Tools of Expressed Emotion**

The five EE components are often assessed by the standard EE assessment tool, Camberwell Family Interview (CFI) (Leff & Vaughn, 1985) during which a key family member (parent, spouse, etc.) is asked to speak about a family member with psychopathology. This semi-structured interview is based on the principle that the way the relatives talk about the family members with psychotic disorders (PPD) during the interview, is the same as how they treat PPD. Although it is a valid EE assessment, it takes more than an hour to administer and requires an in-house training taken place for about two weeks in London.

Given the amount of time needed to administer CFI, the Five Minute Speech Sample (FMSS) (Magana et al., 1986), which is a 5-minute interview, was developed. During the FMSS interview, the relatives are instructed to speak spontaneously about what kind of people the PPD is and how the two get along together for five minutes. Unlike CFI, FMSS only covers two major areas (i.e., criticism and emotional over-involvement) and it has been suggested to be a good alternative of CFI in assessing the emotional climate between person with mental illness and a significant other (Magana et al., 1986; Moore & Kuipers (1999). Specifically, Moore & Kuipers (1999) found an agreement of 89.7% between the two measures. Also, FMSS had a good concurrent validity since it only underestimated the score

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of CFI in 20- 30% of the samples in prior studies (Leeb et al., 1991; Magana et al., 1986). In addition, previous study using FMSS showed a good predictive validity in a sample of depressed children (Asarnow, Goldstein, Tompson, & Guthrie, 1993).

Although interviews have been the major means of EE assessment, it takes an enormous amount of time for mass screening and large-scale studies, especially when it is assessed in conjunction with other measures and outcomes. To make mass EE assessment feasible, self-report EE measures such as Family Attitude Scale (FAS) (Kavanagh et al., 1997) have been developed to be readily used by clinical practitioners. Specifically, FAS assesses relatives' criticism and hostility. Its total scores were found to be negatively correlated with warmth and positively correlated with CC and EOI as rated by CFI. In addition, Arthur and NRG (2002)'s study revealed that this scale was a reliable and valid measure assessing EE in the Hong Kong population. Although FAS was found to be a valid alternative to CFI, it did not cover the positive dimension of EE.

,Indeed, many EE assessment tools developed, including CFI have been focusing on the negative dimension of EE. Specifically, although warmth and positive remarks are recorded in CFI, they are not counted towards the EE score. This was because the first prospective study investigating the association between EE and relapse showed that very low in warmth tended to be associated with higher rates of CC, while very high warmth was associated with high levels of EOI (Brown et al., 1972). This implied that CC and EOI was a negative connotation of warmth. Therefore, the key elements of EE construct have been CC, hostility and EOI. However, Humbeeck and his colleagues (2004) found that neither CC nor EOI were significantly correlated with warmth as assessed by CFI. It suggested that CC and EOI were orthogonal to warmth which should be examined separately. Moreover, other than CFI, there were no interviews or self-report scales developed to assess all five components of EE. Since prior studies suggested that positive EE carried a potential positive effect on the PPD, the

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development of questionnaire scales or interviews tapping the full construct of EE is warranted. Given that composite measures of expressed emotion (high vs low) assessed by CFI or FMSS might not be informative and useful enough to transform the research findings into practical use (Philips & Xiong, 1995), the development of questionnaire scales is particularly important.

**Cultural Considerations of Expressed Emotion**

Although a majority of EE studies had been done in Western countries, inconsistent findings about EE were found in other cultures. This implied that culture moderated the effect of EE and culture-specific EE measure using appropriate EE cutoffs might be needed. For instance, Phillips and Xiong (1995) failed to find a significant association between negative EE and relapse of 57 PPD from mainland China. Also, Bhurgra and McKenzie (2003) found a non-significant increase in the relative risk of relapse for PPD from high negative expressed emotion households when compared with low expressed emotion households in China. Similarly, studies pertaining to ethnic minorities in the United States found that criticism was not correlated with symptomatology in African Americans (Guada, Brekke, Floyd and Barbour, 2009) and Mexican-Americans with schizophrenia (Kopelowicz et al., 2006). These findings suggested that the nature of relationship between PPD and relatives varied across cultures especially in those that were family-oriented. The underlying reason might be that the thresholds and the degrees of acceptance for EE, such as criticisms, were different in various cultures (Jenkins & Karno, 1992). For instance, in the Chinese culture, direct criticisms are usually passively accepted (Phillips & Xiong, 1995) because Chinese people are obligated to be careful about any shortcomings they have and try their best to strive for improvement (Heine, 2001). In other words, criticisms are often treated as the motivation to improve oneself in the Chinese culture, whereas North Americans prefer to view themselves in a more positive term (Heine, 2001).

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Not only that the culture plays a role in the EE-relapse relationship, it also impacts the manifestation of EE such as EOI (Bebbington & Kuipers, 1995) and criticisms (Hooley, 2007). Lopez and colleagues (2009) investigated the variability in the manifestation of expressed emotion between Mexican Americans and European Americans. Results showed that European Americans had more critical comments, less warmth, less EOI, and a high EE profile comprised more of criticism or hostility than their Mexican American counterparts. Also, Wig and colleagues' study (1987) found that Indian relatives were less expressive of critical comments, EOI and positive remarks than Danish and British relatives. However, no significant differences were found in hostility and warmth between these groups. In addition, as assessed by CFI, the average critical comments were fewer in the Hong Kong study (M= 3.64) (Philips & Xiong, 1995) when compared to the London sample (M= 8.4) (Wig et al., 1987). Warmth rating was not much different between the two, whereas positive remarks were fewer in Hong Kong (M= 1.72) (Philips & Xiong, 1995) than the latter sample (M= 2.6) (Wig et al., 1987). Moreover, the percentage of high EOI relatives (19.7%) and high hostility relatives (11.5%) were fewer (Philips & Xiong, 1995) than that found in London (36% and 18%, respectively) (Wig et al., 1987). Furthermore, by using the CFI, Kavanagh (1992)'s review found that 54% of all families of PPD were categorized as high negative EE while 45.6% (Ng et al., 2001) in Hong Kong families was found. These findings were consistent with the view that culture played an important role in shaping the expression of expressed emotion (Bhurgra & McKenzie, 2003; Jenkins & Karno, 1992).

Several cultural aspects might explain the cultural differences between Chinese and Westerners in terms of the EE distributions. For instance, open expression of emotion, either positive or negative is discouraged and self-control as well as emotional restraint are celebrated in the Chinese culture (Hsu, 1995; Yeo, 1997). On the other hand, autonomy and open expression of emotion is emphasized in the Western culture (Hsu, 1995; Yeo, 1997). In

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addition, Chinese people believe that they should keep their emotions under control to maintain the balance of good health because they think that excessive emotion is harmful to a person's physical and mental health. Furthermore, emotion is often suppressed in Chinese because expression of emotion implies weakness of character (Arthur & NRG, 2002). Moreover, when compared to people socialized in individualistic culture, Chinese people are more implicit and tend to hide their actual thoughts, keep dissatisfaction and anger to themselves (Phillips & Xiong, 1995) because they live interdependently and they act in a way to maintain a peaceful and harmonic environment. The suppression of emotion might be especially so in relatives of PPD in Hong Kong because PPD were likely to live with their family after discharge (80%) (Wong, 2000), whereas approximately 60% did in Canada (Seeman, 1998). All in all, these cultural differences might potentially lead to the EE category fallacy (wrong categorization) and sensitivity problems of EE measures, especially CFI and FMSS at which relatives were instructed to verbally describe people with mental illness.

Given the potential effect of culture on EE and cultural variation in family dynamics, culture-specific assessments of EE tapping all five EE components are warranted for more accurate investigations of EE. To be specific, the inconsistent EE-relapse findings and EE manifestations in non- western studies implied that although Chinese and Western cultures shared the same EE construct, culture-specific EE cutoffs might be needed in Chinese population. Also, since EE taps into shared meanings, and patterns of affective responses; and there are different degrees of acceptance regarding EE across cultures, modifications of the EE assessment tools, including the standard assessment tool, CFI, might be needed for different cultures. For instance, in Chinese culture, people with mental illness are thought to be punished for their ancestor's misconduct or for the family's current misbehavior (Lin & Lin, 1980). This belief intensifies the stigma attached to PPD which are already discriminated

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against (Philips, Pearson, Li, Xu & Yang, 2002). Given the discrimination against psychotic disorders in the Chinese society, their relatives may not be willing to disclose or talk about those people with the others. In order to accommodate this characteristic in Chinese, self-report EE questionnaire, which was expected to be a more suitable EE assessment tool in Chinese people, along with modified FMSS were used to measure relatives' EE in the present study.

**Psychosocial Well-being of PPD**

Not only that there has been an imbalance of research studies pertaining to relatives' EE, there has been a pessimistic view about psychotic disorders in prior studies. Specifically, it has been always believed that improvement in symptom reduction should be the main focus before taking care of other aspects of recovery in those people since mid- to late 20$^{th}$ century. In addition, it was believed that one's life was doomed and hopeless and he or she could not lead a satisfactory life once he or she received a diagnosis of psychotic disorders (Deegan, 1997). Thus, prior studies examining the EE outcomes other than relapse were limited. In particular, very few studies (Barrowclough et al., 2003; King and Dixon, 1996; O' Brien et al., 2006) investigated the implication of EE on PPD's psychosocial well-being. One study by Barrowlough et al. (2003) examined the relationship between self-evaluation, family attitudes and symptomatology in PPD using CFI. Results showed that more critical relatives led to greater positive symptoms in PPD. This relationship was mediated by the negative self-evaluation (self esteem) in PPD indicating that the higher the relatives' negative EE the lower self- esteem and greater positive symptoms in PPD. Another study by King and Dixon (1996) examined the relationship between EE and social adjustment in 69 PPD and their 108 relatives. They found that only one component of negative EE, EOI, was associated with a better social outcome in PPD. However, the positive dimensions were not examined in the study.

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Although much less emphasis has been put on the psychosocial outcomes of psychotic disorders and the pathological view towards these mental illnesses prevails, they should be appreciated as much as the management of psychiatric positive symptoms. This is because focusing on psychiatric symptoms, which is one dimension of life, is not sufficient for us to understand the personal growth of PPD as a whole (Philips & Xiong, 1995). According to Davidson (2003), even though not in full remission, we should still embrace and appreciate that PPD can substantially and meaningfully recover over time. In other words, it is suggested to embrace the strengths and capacities in those people while occasion setbacks are acceptable. As a matter of fact, many PPD showed improvement in problems imposed by the illness and they were able to lead a meaningful and satisfactory life (Andreason, Oades, & Caputi, 2003). Therefore, the quality of life and quality of adaptation in the community after discharge from hospitals in PPD should be emphasized as much as medication compliance and symptom maintenance.

**Recovery: empowerment and life satisfaction.**

Attempting to break down the misconception that psychotic disorders have a long-term deteriorating course of illness, there has been a consumer advocacy movement since the first half of the 20th century (Frese, 1998; Tomes, 2006). Urged by the movement, a new concept termed as *recovery* that highlights the importance of hope, quality of life and self-determination notwithstanding psychiatric symptoms in the people with mental illness (Andreason et al., 2003) has emerged. In recent decades, *recovery* has been widely discussed in the mainstream psychiatry as well as the research, policy making, and treatment pertaining to schizophrenia. For instance, all state mental health authorities in the United States were mandated to transform to recovery-oriented systems of care according to the New Freedom Commission Report's recommendation (Bedgregal et al., 2006). In addition, according to Larry Davidson, a clinical

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psychologist who is the foremost researcher and advocate of the recovery movement, "We should not wait for the symptom reduction in the people with schizophrenia before appreciating other strengths and abilities (i.e. the ability to work) in them. Instead, it is more important for those people to learn how to live with their mental illnesses and strive for things other than symptom reduction." (2010) Although its definition has not yet come to consensus agreement which hindered its implication in the clinical practice (Davidson, O' Connell, Tondora, Lawless, & Evans, 2005), the immediate definitions entail the same core features including empowerment as well as enjoyable and meaningful life.

In 2005, the Substance Abuse and Mental Health Services Administration of the United States gathered a consensus among an interdisciplinary group of researchers and practitioners in the field and proposed ten themes regarding recovery. The ten themes include self-direction, strength-based, respect, responsibilities, empowerment, non-linear, peer support, holistic, individualized and client-centred, and hope. Given the importance of recovery in PPD, the present study takes a broader concept in understanding the effects of EE on a range of strength-based outcomes in PPD rather than focusing narrowly on the possibility of relapses as in prior studies.

*Recovery* has not only offered us a new perspective to understand the personal growth of PPD, but it has also assured us that those people are capable of leading an empowered and satisfactory life as they choose notwithstanding the presence of their psychiatric symptoms. However, there were by far no EE empirical research studies examining the recovery outcomes or the relationship among those outcomes. To investigate this concept, it is crucial for us to start with its core outcomes. According to the five stages of *recovery*, the final stage is represented by full and meaningful life that is characterized by self-management of the illness, resilience and a positive sense of self

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(Andreason, Caputi, & Oades, 2006). This mirrors the empowerment model and dimensions of psychological well-being (PWB) (Ryff & Keyes, 1995), implying that empowerment and life satisfaction are the core outcomes of *recovery*. In addition, there had been evidences showing that family environment influenced PPD's social functioning (King & Dixon, 1996; O' Brien et al., 2006), self-concept (Barrowclough et al., 2003), and quality of life (Smith & Greenberg, 2007), which are recovery-related outcomes. Thus, the present study attempted to investigate the relationship of the core *recovery* outcomes, empowerment and life satisfaction, with expressed emotion.

***Empowerment.***

As the core outcome of recovery, empowerment is rooted in the "self-help and mutual aid tradition of the United States" (Simon, 1990). Along the line with empowerment, Corrigan (2006) stated that people would feel better not only because they received support from the others but that they could also offer help to the others and they could do things on their own. Early on, it was defined by Rappaport (1987) as "the connection between a sense of personal competence, a desire for and willingness to take action in the public domain." Although there have been different definitions for empowerment, it was most commonly defined as the control over one's life and the participation in the community in terms of residence, vocation, education and relationship and other related resources (Segal, Silverman & Temkin, 1995). Regarding the importance of empowerment in mental illness, Castelein and his colleagues (2008) found that empowerment level in Holland PPD was negatively associated with their symptom severity. This suggested that empowerment helped reduce symptom severity in PPD.

***Life satisfaction.***

On the other hand, life satisfaction, which is under the umbrella of quality of

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life, is often used as an outcome for evaluation of clinical services. Specifically, life satisfaction refers to the subjective indicators of one's well-being, including current satisfaction with various life domains (i.e., work, social relationship, living condition and one's self); while quality of life included both the subjective indicators and the "objective" life conditions (i.e. access to resources and opportunities in various domains) (Katschnig, 1997; Lehman, 1997). Besides the fact that both empowerment and life satisfaction are the core outcomes of recovery, there were evidences revealing that the two were closely related to each other. For instance, Barrowclough et al. (2003) showed that empowerment level had a positive association with the quality of life in PPD. This implied that the more sense of control over one's life and more participation in the community a person with psychotic disorders had the more satisfactory life he or she led.

**Psychosocial Well-Being of the Relatives**

Previous studies have been focusing on the EE-relapse association, which seemed to blame the relatives for the relapse in PPD (McFarlane, 2002). However, the impact of EE on the relatives themselves who suffer from the burden of care-giving is neglected. Prior studies found that EOI was positively associated with burden (Jenkins, 1992) and negatively correlated with social support (Jenkins, 1992) among caregivers of schizophrenia. Since EOI was associated with both physical and psychological health, which was mediated by burden and social support. (Breitborde, López, Chang, Lopelowicz & Zarate, 2009), it would not be surprising that EE affects the well-being of the caregivers as well. The present study examined the relationship between relatives' EE and their life satisfaction among Chinese.

Meanwhile, the relatives' psychosocial well- being may also affect the quality of their care-giving or relationship with PPD as well as family functioning. In the context of Chinese culture in which people are interdependent, the psychological well-being of the relatives is

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likely to interact with that of the PPD. Specifically, once a family member was diagnosed with psychotic disorders and he or she lived with the caregivers, the functional roles and responsibilities of both parties as well as other family members were affected (Philips, 2003). These changes in family might induce stress that might further worsen other aspects such as job satisfaction in those people. According to Frone, Russell and Cooper (1992), the stress experienced in family affected ones' job satisfaction, which is one of the psychosocial domains. Also, it was concluded by Kanter (1977) that "family situations can define work orientations, motivations, abilities, emotional energy, and the demands people bring to the workplace" (p. 56-57). For instance, a father who had acute psychotic symptoms might not be able to hold a full-time job as he did before the diagnosis. As a result, the mother who used to be a homemaker might need to take the responsibility to earn the living for the family. On the other hand, if the mother had those acute symptoms, the father who had already held a job might need to put more effort in rearing their children. Therefore, the psychosocial well-being of relatives and PPD is equally important to be examined.

**Aims of Study**

Regarding the concerns above, there were three major aims of the current study.

**1.** To investigate the relationship of relatives' expressed emotion with psychosocial well-being of PPD as well as that of the relatives themselves. Specifically, the relationship of relatives' criticism, hostility, emotion over-involvement, positive remarks and warmth expressed towards PPD, with psychiatric symptoms, empowerment, and life satisfaction in PPD as well as the life satisfaction of the relatives themselves was examined. Figure 1 showed the proposed model for the present study.

2. To investigate the effect of relatives' expressed emotion as well as PPD's empowerment on PPD's life satisfaction after controlling for the effects of psychiatric symptoms were.

**3.** To assess both negative and positive EE by incorporating the positive dimension of EE to

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the existing self-report negative EE measures as well as to the existing FMSS. To validate the EE construct in Hong Kong.

**Hypotheses of This Study**

1. Relatives' EE was hypothesized to be associated with the psychiatric symptoms, empowerment, and life satisfaction in PPD. Higher levels of CC, hostility and EOI were associated with more psychiatric symptoms, lower level of empowerment as well as life satisfaction in PPD. Higher levels of positive remarks and warmth were associated with fewer psychiatric symptoms, higher level of empowerment as well as life satisfaction in PPD. The psychiatric symptoms as well as their empowerment level were expected to mediate the EE-life satisfaction of PPD association. In addition, empowerment was expected to mediate the psychiatric symptoms-life satisfaction relationship of PPD.
2. EE was hypothesized to predict the level of life satisfaction in relatives. Specifically, higher levels of CC, hostility and EOI predicted lower level of life satisfaction in the relatives. Higher levels of warmth and positive remarks predicted higher level of life satisfaction in the relatives. In addition, relatives' life satisfaction was expected to mediate EE-life satisfaction association of PPD.
3. After PPD's psychiatric symptoms were controlled for, relatives' expressed emotion as well as PPD's empowerment level was hypothesized to be significantly associated with PPD's life satisfaction.
4. Self-report EE assessed by questionnaire and the verbal one assessed by FMSS were expected to be concordant and the EE construct comprising positive and negative EE was validated in Hong Kong population.

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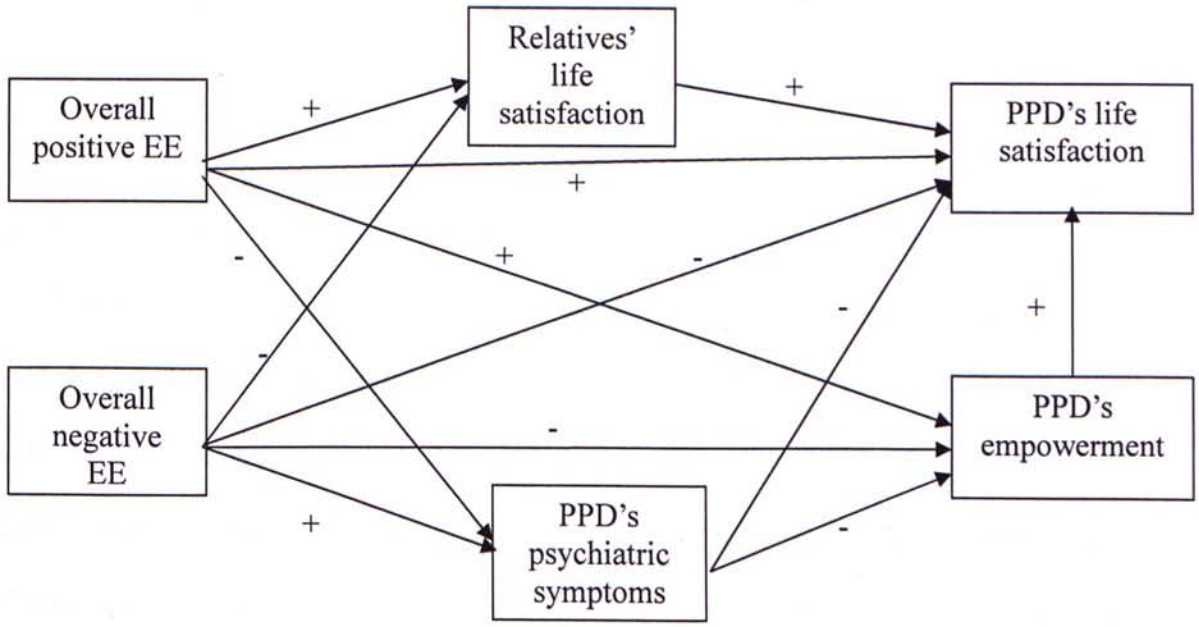


*Figure 1.* Proposed model of the present study

## Method

### Participants

Eighty dyads of Chinese PPD and their corresponding relatives were recruited from several sources: New Life Psychiatric Rehabilitation Association and Society for Rehabilitation and Crime Prevention that are non-governmental organizations (NGOs) serving people with mental illness and outpatient clinics at the Prince of Wales Hospital and the Shatin Hospital in Hong Kong. The participants had to meet the following criteria in order to be included in this study: 1) relatives and PPD had to either live together or have face-to-face contact for at least 2 times or contact via phone for at least four times per week in the past 2 months; 2) PPD were diagnosed as schizophrenia or any other psychotic disorders by the International Classification of Diseases-10 (ICD-10) and did not have any co-morbidities according to their latest medical record; 3) PPD received outpatient treatment at the time of interview; 4) PPD did not have intellectual disabilities; and 5) PPD were between the age of 18-65. Each participant was debriefed and compensated with a souvenir

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and a mental health booklet after the completion of this study.

**Participant recruitment.**

Participants from NGOs were recruited by their respective social workers. Specifically, the social workers who had been following the PPD invited the chief relatives of PPD who spent the most amount of time with PPD to participate in the present study. On the other hand, those from the outpatient clinics were invited directly at those clinics while they were waiting for their psychiatric appointment in the lobby. Since those relatives accompanied PPD to their psychiatric appointment at the clinics, it was assumed that they were the family members who paid the most amount of attention and care to the PPD.

**Relatives' profile.**

Among the 80 relatives, 24 (30%) were males and 56 (70%) were females. Seventy-nine of them (98.8%) reported their age, martial status and employment status. The mean age was 56.09 (SD = 13.6 years) with a range from 18 to 84. A majority of them (n= 52, 65.0%) were married. Approximately half of the relatives (n= 47, 58.8%) were PPD's parents (fathers: n= 11, 13.8%; mothers: n= 36, 45.0%) and the second largest group were siblings (n= 18, 22.5%). In terms of education, the largest group were primary school graduates (n= 26, 32.5%) followed by the group of senior high school graduates (n= 20, 25%). Thirty seven percent (46.3%) were employed and 40% of the relatives (n=32) have retired at the time of interview. Seventeen (21.3%) had a monthly salary of HK$ 5000 or below and about half of the relatives (n= 38, 47.5%) did not report their monthly salary. Forty-one relatives (51.3%) lived with the PPD while 39 (48.8%) did not in the past two months before the interview. On average, relatives and

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PPD met each other in person for 4.2 days (SD= 2.8 days) weekly in the past two months before the interview. In addition, they talked over the telephone for 5 times weekly (SD= 10.6 times) (See Table 1 and Table 2 for details).

**PPD's profile.**

Fifty five percent (n= 44) of PPD were males and 45% (n= 36) were females and a majority of them (n= 60, 75%) were single. On average, the PPD were 39.9 years old (SD = 12.4 years) ranging from 18 to 65 while 2 of them (2.5%) did not report their age. In terms of education, about half of them (n= 41, 51.3%) were senior high school graduates. Fifty PPD (62.5%) worked in either vocational training or sheltered workshops (vocational training: n=20, 25%; sheltered workshop: n=30, 37.5%); 16 (20%) were unemployed and 14 (17.5%) were employed. The majority (n=58, 72.5%) earned HK$ 5000 or less per month and (n= 63, 78.8%) were diagnosed with schizophrenia. Seventy six of the PPD (95%) reported the year they received a diagnosis of psychotic disorder. On average, they had been diagnosed with the psychotic disorder for 14.0 years (SD= 10.3 years) ranging from 0.5 year to 44 years (See Table 1 and Table 2 for details).

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Table 1
*Demographics Characteristics of Both Relatives and PPD (Continuous Variables) (n=80)*

| | Relatives | | | PPD | | |
|---|---|---|---|---|---|---|
| Variables | M (SD) | Range | N (%) | M (SD) | Range | N (%) |
| Age | 56.1 (13.6) | 18-65<br>66-84 | 63 (78.8)<br>16 (20) | 39.9 (12.4) | 18-65 | |
| In-person Interaction between Relatives and PPD (Days/ Week) | 4.2 (2.8) | 0-1<br>2-7 | 24 (30)<br>56 (70) | | | |
| Interaction over Phone between Relatives and PPD (Times/Week) | 5.0 (10.6) | 0- 3<br>4-70 | 46 (57.5)<br>34 (42.5) | | | |
| Duration of Mental Illness (Years) | | | | 14 (10.3) | 0.5- 10<br>11- 44 | 39 (48.8)<br>41 (51.2) |

Table 2
*Demographics Characteristics of Both Relatives and PPD (Categorical Variables) (n=80)*

| | Relatives | | PPD | |
|---|---|---|---|---|
| Variables | N | % | N | % |
| Gender | | | | |
| Male | 24 | 30 | 44 | 55 |
| Female | 56 | 70 | 36 | 45 |
| Marital Status | | | | |
| Married | 52 | 65 | 10 | 12.5 |
| Single | 10 | 12.5 | 60 | 75 |
| Divorced | 8 | 10 | 9 | 11.3 |
| Widowed | 9 | 11.3 | 1 | 1.3 |
| Relationship of Relatives to PPD | | | | |
| Parents | 47 | 58.8 | | |
| Fathers | 11 | 13.8 | | |
| Mothers | 36 | 45 | | |
| Siblings | 18 | 22.5 | | |
| Brothers | 5 | 6.3 | | |
| Sisters | 13 | 16.3 | | |
| Offspring | 5 | 6.3 | | |
| Spouses | 7 | 10 | | |
| Others (brother-in-law and uncle) | 2 | 2.5 | | |
| Education | | | | |
| Illiterates | 9 | 11.3 | 0 | 0 |
| Primary School | 26 | 32.5 | 12 | 15 |
| Junior High School | 17 | 21.3 | 21 | 26.3 |
| Senior high school | 20 | 25 | 41 | 51.3 |

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| | | | | |
|---|---|---|---|---|
| Associate or Bachelor Degree | 8 | 10 | 6 | 7.5 |
| Employment Status | | | | |
| Unemployed | 10 | 12.5 | 16 | 20 |
| Employed | 37 | 46.3 | 14 | 17.5 |
| Retired | 32 | 40 | 0 | 0 |
| Vocational Training/ | N/A | N/A | 20 | 25 |
| Sheltered Workshops | N/A | N/A | 30 | 37.5 |
| Monthly salary (HK$) | | | | |
| 5000 or below | 17 | 21.3 | 58 | 72.5 |
| 5001- 10000 | 16 | 20 | 3 | 3.8 |
| 10001- 20000 | 7 | 8.8 | 0 | 0 |
| 20001- 30000 | 2 | 2.5 | 0 | 0 |
| Did not report | 38 | 47.5 | 19 | 23.8 |
| Diagnosis | | | | |
| Schizophrenia | | | 63 | 78.8 |
| Paranoid Schizophrenia | | | 8 | 10 |
| Affective Schizophrenia | | | 1 | 1.3 |
| Psychosis | | | 2 | 2.5 |
| Others: delusional disorder, bipolar affective disorder, encephalitis induced psychotic episode, organic bipolar affective disorder, temporal lobe epilepsy (TLE) and psychosis, and depression with psychosis | | | 6 (1 for each) | 7.5 (1.3 for each) |

**Measures**

All the measures were translated and back-translated into Chinese by trained translators with expertise in psychology. Total scores of the self-report scales were computed by averaging all the item scores and the factor score was computed by averaging the item scores under the corresponding factor. There was a different scoring scheme for the verbal report of relatives' expressed emotion (EE) assessed by Five Minute Speech Sample (FMSS) (Magana et al., 1986) and the details were described below.

**Relatives.**

***Expressed emotion.***

Interview as well as self-report measures were used to assess relatives'

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expressed emotion (criticism (CC), hostility, emotional over-involvement (EOI), positive remarks and warmth) in the present study.

*Five Minute Speech Sample (FMSS).*

Since Camberwell Family Interview (CFI) (Vaughn & Leff, 1984) takes more than an hour to administer and requires an in-house training taken place in London which was not feasible for the present study, Five Minute Speech Sample (FMSS) (Magana et al., 1986), which is a much shorter interview was used. FMSS has been suggested to be a good alternative of CFI in assessing the emotional climate between a person with mental illness and a significant other (Magana et al., 1986; Moore & Kuipers, 1999).

During the FMSS interview, the relatives were instructed to speak about the PPD for five minutes. The five-minute speeches were audio-taped for content analysis. The specific instructions given to relatives were: "I'd like to hear your thoughts about [PPD's name] in your own words and without my interrupting you with any questions or comments. When I ask you to begin, I'd like you to speak for 5 min, telling me what kind of a person [PPD's name] is and how the two of you get along together. After you have begun to speak, I prefer not to answer any questions. Are there any questions you would like to ask me before we begin?'

FMSS basically covers two major areas (i.e., criticism and emotional over-involvement) and eight subareas (i.e., initial statement, quality of relationship, critical comments, self-sacrificing or overprotective behaviors, emotional display, excessive details over the past, statements of emotional over-involvement, excessive praise). In addition to the existing areas, three more major areas including hostility, positive remarks and warmth and three

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subareas (warm actions, warmth rating, hostile comments) were added to fully capture the five-factor construct of expressed emotion assessed by CFI in the present study.

*Definition of each subscale.*

According to Magana et al. (1986), the *initial statement*, defined as the first thought or idea that the relative expressed about the PPD, is rated as either negative, neutral or positive based on either content and/or tone. A statement that does not provide enough information to be scored as either positive or negative or is purely factual in nature which does not describe how the respondent view or feel about the PPD is rated as a neutral statement (i.e., we get along okay). A negative one is defined as either critical comments, a negative relationship statement, or statement concerning a negative attribute of the PPD (i.e. He/she could not control himself/herself.). An initial statement that involves either a positive remark or a positive relationship statement is coded as positive one (i.e. He/she is a kind person.). *Critical comments* are statements that reflect obvious or extreme dislike or disapproval of any aspects of the PPD (i.e., He/she is very lazy).

*Self-sacrificing or devoted behaviors* are dramatic, exaggerated or overprotective behaviors toward the PPD (i.e. I quitted my job because I wanted to take care of him/her). *Emotional display* refers to the emotion related to emotional over-involvement expressed by the relatives when talking about the PPD (i.e. cry). *Excessive detail about the past* refers to the relatives talking about the past events involving the PPD before the onset of their mental disorder. Statements of *emotional over-involvement* are defined as the statements expressing the concerns regarding the PPD or the disorder that

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induce stress in the relative him/herself. These statements include those that reflect the relative is blaming him/herself for the PPD' disorders (i.e., I worried too much about him/her that I could not sleep well).

The *quality of relationship* is rated based on the comments about the relationship between the relative and PPD made by the relatives during the interview. Each statement is either rated as strong positive, weak positive, weak negative, or strong positive. Examples of each rating are: "We get along very well." (strong positive); "We get along okay." (weak positive); "We sometimes have argument." (weak negative); and "We never talk to each other." (strong negative). On the basis of each relationship comment, an *overall rating* regarding the relationship is made: neutral relationship; positive relationship; and negative relationship. *Positive remarks* are any positive comments or praise regarding the PPD (i.e., he/she is very independent.).

The three newly-added subscales are defined for the present study. Compared to criticism, *hostility* is defined as a more generalized critical attitude and disapproval of the PPD as a person. Rejection is a good indicator of hostility. A hostile statement reflects a negative attitude directed at the PPD because the relative feels that the disorder or behaviors of the PPD are controllable and that the PPD is choosing not to get better. The relative criticizes the PPD on some aspects, regardless of whether they are true or not (i.e., He/she can never do things right because he/she did not try hard enough.). *Warm actions* include that the relatives talked in a warm tone or voice with the PPD, expressed love or warmth towards the PPD verbally/ behaviorally, or thought about how to improve their interaction with the PPD (i.e., I always talk to him/her.). A global rating for relative's *warmth* is used to assess how

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much warmth the relatives expressed while speaking about the PPD. This criterion is identical to the CFI global warmth rating. The appendix reported the brief definition of each subscale of FMSS.

*FMSS raw ratings.*

FMSS of 77 (96.3%) the relatives were successfully audio-taped and analyzed by the two trained raters on the basis of the original FMSS coding scheme while 3(3.8%) were not because the relatives revealed that they did not know what to speak about even after multiple times of explanation and prompts.

According to the raters' ratings, 70% (n= 56) of the relatives reported one or more CC comments (the original cutoff for high-CC) and would have been categorized as high-CC and high overall negative EE. However, previous study using CFI (Ng et al., 2001) to assess EE showed that only about 45% of the family members of people with mental illness in Hong Kong were categorized as high negative EE. Also, prior studies in Western population (Magana et al., 1986; Tompson et al., 1995) found that only about 33-50% of the participants were categorized as high negative EE. Since cultural differences were found in negative EE (CC, hostility and EOI) (Lopez et al., 2009; Wig et al., 1987), we speculated that the CC scale was oversensitive in detecting negative EE in the Chinese culture. Therefore, the criteria for assigning high-CC were modified according to the frequency distribution of CC comments in this study.

Given the original FMSS cutoff for distinguishing high-EOI represented the top 20% frequency counts under the distribution of

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self-sacrificing behaviors (one of the EOI criteria) in the present study, this criterion is used as a benchmark for adjustment of the other EE constructs. Therefore, the revised cutoff for distinguishing high-CC as well as the ones for the newly-added scales, which were hostility, positive remarks and warmth, were derived from the top 10-20% frequency counts of the corresponding variables recorded by the raters.

*FMSS revised scoring scheme for the present study.*

*Criticism.*

Criticisms were scored either on the basis of content and/or tone. The criteria for distinguishing the high-CC relatives were any of the following: (1) initial statement was negative; or (2) an overall relationship between the relatives and PPD was negative; or (3) five or more critical comments about the PPD.

*Emotional over-involvement.*

The criteria for distinguishing the high-EOI relatives were any of the following: (1) a report of self-sacrificing or overprotective behavior, or (2) an emotional display during the interview, or (3) a combination of two of the following: a) excessive detail about the past (used more than half of the interview time talking about the past), b) one or more statements of emotional over-involvement, and c) excessive praise (five or more positive remarks).

*Hostility.*

The criterion for distinguishing the high-hostility relatives was: two or more hostile statements about the PPD.

*Positive remarks.*

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The criteria for distinguishing the high- positive remarks relatives were: (1) four or more positive remarks (if five or more, no excessive details from the past and no statements of love and willingness to do anything for the PPD), or (2) positive initial statement.

*Warmth.*

The criteria for distinguishing the high- warmth were: (1) four or more warm actions, or (2) positive relationship, or (3) warmth rating was 5 (range from 0 to 5).

*Overall negative EE.*

Relatives were categorized as high overall negative EE if they were categorized either as high- CC, high- EOI, or high- hostility. They could be rated as high on both CC, EOI and hostility.

*Overall positive EE.*

Relatives were categorized as high overall positive EE if they were categorized either as high- warmth or high- positive remarks. They could be rated as high on both warmth and positive remarks. Table 3 showed the revised coding scheme of FMSS for the present study.

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Table 3
*Revised Coding Scheme of Five Minute Speech Sample for Present Study*

| Scales | Criteria [a] | Range |
|---|---|---|
| Original FMSS main scales | | |
| High- Criticism (CC) | 1. Negative initial statement [e] | -1= negative statement<br>0= neutral statement<br>+1= positive statement |
| | 2. Negative relationship [e] | -1= negative relationship<br>0= neutral relationship<br>+1= positive relationship |
| | 3. Five or more critical comments [b f] | N/A |
| High- emotional over-involvement EOI | 1. One or more self-sacrificing or overprotective behaviors [b f] | N/A |
| | 2. Emotional display during interview (EOI-related: sigh, cry) [b f] | N/A |
| | 3. Two of the followings:<br>A) Excessive details about the past- (half of the interview)[c f] | N/A |
| | B) One or more statements of love and willingness to do anything for the PPD [f] | N/A |
| | C) Excessive praise (five or more positive remarks) [f] | N/A |
| Newly added 3 main scales | | |
| High-Hostility | Two or more hostility statements [f] | N/A |
| High- Positive Remarks | 1. Four or more positive remarks; if 5 or more, no excessive details from the past and no statements of love and willingness to do anything for the PPD [f] | N/A |
| | 2. First statement positive [e] | -1= negative statement<br>0= neutral statement<br>+0= positive statement |
| High- Warmth | 1. 4 or more warm actions [f] | N/A |
| | 2. Positive relationship [e] | -1= negative relationship<br>0= neutral relationship<br>+1= positive relationship |

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| | | |
|---|---|---|
| | 3. Warmth rating is 5 [f] | 0= no warmth at all<br>1= very little warmth<br>2= a little warmth<br>3= somewhat warmth<br>4= quite warmth<br>5= a lot of warmth |
| Overall scales | | |
| High Negative EE | was categorized as high on either one of the three scales: *criticism, hostility, EOI* [d e] | 0= low negative EE<br>+1= high negative EE |
| High Positive EE | was categorized as high on either of the two scales: *positive remarks, warmth* [d e] | 0= low positive EE<br>+1= high positive EE |

[a] If either one of the following scale criteria was met, the relatives would be categorized as high on that particular scale. If none of the criteria for the scale was met, the relatives would be categorized as low on that particular scale.
[b] This criterion was revised in the present study.
[c] This criterion was defined for the present study.
[d] Relatives were categorized as low on the overall EE scale if they were categorized as low on all of the corresponding subscales.
[e] Categorical variable.
[f] Continuous variable (frequency count).

*Self-report questionnaire.*

*Criticism (CC) & emotional over-involvement (EOI).*

Relatives' criticisms towards PPD and their emotional over-involvement (EOI) characterizing dramatization, emotionality, self sacrifice, devoted and protective behaviors towards the PPD were measured by the Family Questionnaire (Wiedemann, Rayki, Feinstein, & Hahlweg, 2002). This scale consisted of two subscales: criticism (10 items) and EOI (10 items). Sample items included "I often think about what is to become of him/her." for EOI; and "I'm often angry with him or her." for CC. The Family Questionnaire (Wiedemann et al., 2002) was originally developed to measure CC and EOI in relatives of people with schizophrenia. The responses for this subscale range from (1) *rarely* to (4)

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*very often*. High scores indicated higher level of criticisms or EOI expressed by the relatives. The questionnaire had been used in participants with first episode of psychosis (McNab, Haslam & Burnett, 2007). The Cronbach's α were 0.85 (total), 0.78 (CC), and 0.81 (EOI) in the present study.

*Hostility & positive remarks.*

Hostility and positive remarks were measured by the Family Attitude Scale (FAS: Kavangh et al. 1997). This scale originally consisted of three factors (CC, Hostility, Positive remarks) with a total of 30 items according to the study by Katsuki, Goto and Someya (2005). Only two subscales, 6-item hostility and 10-item positive remarks, were used in present study. The scale was a 5-point Likert scale ranging from (0) *never* to (4) *always*. The higher scores for each factor indicated higher levels of that factor. Sample items included "I shout at him." (hostility); "It is easy to deal with him." (positive remarks). It had also been used in Chinese families with family members diagnosed with schizophrenia (Li & Arthur, 2005). In the present study, the Cronbach's α was .78 for hostility and .84 for positive remarks. .

*Warmth.*

Warmth towards PPD was assessed by the 12-item care subscale of the Parental Bonding Instrument (PBI: Paker, Fairley, Greenwood, Jurd, & Silove, 1982). This scale was a 4-point Likert scale ranging from (0) *very unlike* to (3) *very like*. Negatively-worded items were reverse-coded so that high scores indicated higher level of relative's warmth towards the PPD. Sample item included "Enjoyed talking things over with him/her."

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Its Cronbach's α was 0.73 in the present study.

*Satisfaction with life.*

The 5-item Satisfaction with Life scale developed by Diener, Emmons, Larsen and Griffin (1985) was used to measure how much the relatives are satisfied with their own lives. The responses for this scale ranged from (1) *strongly disagree* to (7) *strongly agree*. Sample items included "The conditions of my life are excellent" and "I am satisfied with my life." High scores indicated higher level of life satisfaction in the relatives. This scale had been used among adults (Perrewé and Hochwarter, 1999). The Cronbach's α was 0.87 in the present study.

*Demographic information.*

Relatives were asked about their age, gender, educational level, employment status, salary, whether they lived with the PPD in the last 2 months, the number of days per week they met in person, the number of times they talked with the PPD on phone in the last 2 months and the diagnosis of the PPD.

**Family member with psychotic disorders.**

*Empowerment.*

Empowerment Scale developed by Rogers, Chamberlin, Ellison, and Crean (1997) to measure the empowerment of the users of mental health services was used. This 28-item scale included items tapping self-esteem-self-efficacy, power-powerlessness, community activism and autonomy, optimism and control over the future, and righteous anger. The responses were coded from (1) *strongly disagree* to (6) *strongly agree*. Negatively-worded items were reverse coded so that higher scores indicated higher level of empowerment level in the PPD. Sample

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items included "I am often able to overcome barriers." and "I can pretty much determine what will happen in my life." This scale had also been used in Japanese people with schizophrenia (Yamada & Suzuki, 2007). Only the total score was used and its Cronbach's α was 0.76 in the present study.

*Life satisfaction.*

18-item Satisfaction With Life scale (Test, Greenberg, Long & Burke, 2005) measuring the life satisfaction of adults with schizophrenia and schizophrenia-related disorders was used to assess how much the PPD were satisfied with their lives in terms of their living condition, social relationship, work, and self and present life. The responses for the scale ranged from (0) *not at all* to (4) *a great deal*. High scores indicated that the PPD were more satisfied with their lives. Sample items included "How satisfied are you with the number of friends you have?"; and "How satisfied are you with the kind of work that you do?". Only the total score was used and its internal consistency was 0.84 in the present study.

*Psychiatric symptoms and functional difficulties.*

Psychiatric symptoms and functional difficulties were measured by 24-item BASIS-24 (Eisen, Gerena, Ranganathan, Esch, & Idiculla, 2006). This scale included six subscales: depression and functioning, interpersonal relationships, psychosis, substance abuse, emotional lability, and self-harm. All responses were coded on a 5-point scale with different sets of response options tailored to particular sets of questions. This scale had been used in people with mental illness (Eisen et al., 2006). Only the total score was used and its Cronbach's α was .86 and in this study.

*Demographic information.*

PPD were asked about their age, gender, educational level, employment status,

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salary and whether they lived with their relatives or lived alone in the last 2 months.

**Procedure**

Upon initial consent, the study purpose and objectives were described to elicit their participation in the study. Dyads of PPD and relative were then interviewed individually. Most of the participants were interviewed in person but a few of them were interviewed over the telephone since there was no evidence showing that it would make a difference (Tompson et al., 1995). For the relative's interview, the interview measure, FMSS (Magana et al., 1986) was administered before the self-report questionnaire. Both PPD and their relatives were interviewed about their demographic information. Relatives' criticism (CC), hostility, or emotional over-involvement (EOI), warmth and positive remarks towards the PPD was assessed. In addition, relatives were asked about life satisfaction. On the other hand, PPD were interviewed about their empowerment, life satisfaction, and psychiatric symptoms. Each interview lasted for 30 minutes for each PPD and 45 minutes for each relative and every participant was debriefed immediately after interview.

## Results

**Inter-rater Reliability of FMSS Categorizations**

Sixteen clips drawn by random using SPSS 15.0 were analyzed and coded by two raters trained by the author for calibration and inter-rater reliability assessed by the Kappa statistics. On the basis of original FMSS coding scheme, the Kappa statistics (Cohen, 1960) for this FMSS EE ratings were: 0.51 ($p<.05$), 95% CI (0.00, 1.02) for FMSS overall negative EE; 0.54 ($p <.05$), 95% CI (.13, .95) for FMSS high-CC; 0.42 ($p> .05$), 95% CI (.06, .90) for FMSS high-EOI. Two raters agreed on the FMSS overall negative EE categorization for 14 of the 16 cases (87.5%); FMSS-CC for 13 of the 16 cases (81.3%); FMSS-EOI for 12 of the 16 cases (75% agreement).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

With the revised coding scheme, the inter-rater reliabilities for overall negative EE and criticism of the same 16 cases were assessed again and the newly added scales were measured. Moderate inter-reliabilities ranging from ($k$= .36- .61) (Landis & Koch, 1977) were obtained: 0.47 (p> .05), 95% CI (.02 ,.92) for FMSS overall negative EE; 0.51 (p< .05), 95% CI (.10, .92)for FMSS high-CC; 0.60 (p< .05), 95% CI (.13, 1.07) for FMSS high-hostility; 0.36 (p> .05), 95% CI (-.10, .82) for FMSS overall high positive EE; 0.49 (p<.05), 95% CI (0.06, .92) for FMSS high-warmth; and 0.61 (p< .05), 95% CI (.22, 1.00) for FMSS high-positive remarks. Two raters agreed on the FMSS overall negative EE categorization for 12 of the 16 cases (75% agreement); FMSS-CC for 12 of the 16 cases (75% agreement); FMSS- hostility for 14 of the 16 cases (87.5% agreement); FMSS overall positive EE for 11 of the 16 cases (68.8% agreement); FMSS- warmth for 12 of the 16 cases (75% agreement); and FMSS-positive remarks for 13 of the 16 cases (81.3% agreement). The average duration of each FMSS audio clip was 3 minutes 52 seconds (84.1). After calibration, all remaining audio clips were coded by one of the two raters and her ratings were used for final analysis.

**Negative and Positive EE Scores**

To explore the factor structure of negative EE and positive EE with the present data, a principal component analysis with varimax rotation and the eigenvalues > 1.0 rule using SPSS 15.0 was performed with the five self-reported expressed emotion (EE) mean scores: criticism, hostility, emotional over-involvement, positive remarks and warmth. Findings showed a two-factor model explaining 78.0% of variance. The first factor which explained 40.8% of variance including the self-report scores of criticism, hostility and emotion over-involvement was labeled "overall self-report negative EE"; and the second one which explained an additional 37.1% of variance including the self- report scores of positive remarks and warmth was labeled "overall self-report positive EE". The factor loadings of the

CC: Criticism
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five expressed emotion scores ranged from 0.80 to 0.88 (see Table 4).

Table 4
*Factor Analytic Results of Five Expressed Emotion Scores Assessed by Self-report Questionnaire*

| Expressed emotion scores | Factor 1 loadings | Factor 2 loadings |
|---|---|---|
| Emotional over-involvement | **.82** | .23 |
| Criticism | **.80** | -.42 |
| Hostility | **.83** | -.30 |
| Positive remarks | -.18 | **.88** |
| Warmth | -.04 | **.88** |

Based on the results obtained in EFA, self-report overall negative EE was computed by summing the standardized values of the three self-report negative EE scores: criticism, emotional over-involvement and hostility while the self-report overall positive EE was computed by summing the standardized values of the two self-report positive EE scores: positive remarks and warmth. The mean scores of self-report EE were reported in Table 5.

Table 5
*Mean Scores of Expressed Emotion Assessed by Self-report Questionnaire and Outcome Variables*

| Variables | M (SD) | Range |
|---|---|---|
| CC | 2.00 (.55) | 1- 4 |
| EOI | 2.12 (.62) | 1-4 |
| Hostility | .94 (.62) | 0-4 |
| Positive remarks | 2.49 (.77) | 0-4 |
| Warmth | 2.13 (.45) | 0-3 |
| Relatives' life satisfaction | 4.60 (1.49) | 1-7 |
| PPD's empowerment | 2.61 (.25) | 1-6 |
| PPD's symptomatology | .90 (.60) | 1-5 |
| PPD's life satisfaction | 2.43 (.49) | 0-4 |

FMSS overall EE scores (FMSS Negative EE and FMSS Positive EE), and sub-scores(FMSS-Criticism, FMSS-Hostility, FMSS-EOI, FMSS-Positive remarks, and

CC: Criticism
EE: Expressed emotion
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FMSS-Warmth) were all binary scores with 1 representing high on a particular score and 0 representing low on a particular score. In terms of the ratings of FMSS, 52 relatives (65.0%) met the criteria for high overall negative EE; and 40 (50.0%) were categorized as high overall positive EE. Thirteen (16.3%) to forty four relatives (55%) met the criteria for high negative sub-EE (CC, EOI and hostility) while 26 (32.5%) to 31 (38.8%) were categorized as high positive EE (positive remarks and warmth). Table 6 reported the statistics of FMSS EE categorization.

Table 6
*Relatives' EE Profile Assessed by FMSS*

| Variables | N | % |
|---|---|---|
| High CC | 44 | 55 |
| High EOI | 24 | 30 |
| High hostility | 13 | 16.3 |
| High warmth | 31 | 38.8 |
| High positive remarks | 26 | 32.5 |
| High overall negative EE | 52 | 65 |
| High overall positive EE | 40 | 50 |

**Relationship between Overall EE and Sub-EE**

**Self-report.**

Self report overall positive EE was significantly correlated with overall negative EE ($r = -.30$, $p < .01$) and self report EE sub-scores: positive remarks ($r = .90$, $p < .001$); warmth ($r = .90$, $p < .001$); criticism ($r = -.45$, $p < .001$); hostility ($r = -.33$, $p < .01$) but it was not significantly correlated with emotional over-involvement ($r = .02$, $p > .05$). Self-report overall negative EE was significantly correlated with self-report EE sub-scores: positive remarks ($r = -.33$, $p < .01$); criticism ($r = .88$, $p < .001$); hostility ($r = .87$, $p < .001$); emotional over-involvement ($r = .76$, $p < .001$); and marginally significantly correlated with warmth ($r = -.22$, $p = .05$). Table 7 showed all correlations between overall

CC: Criticism
EE: Expressed emotion
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EE and sub-EE scores assessed by self-report questionnaire.

Table 7
*Correlations between Self- report Overall EE and Sub-EE scores*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1 overall positive EE | 1 | .90*** | .90*** | -.30** | -.45*** | -.33** | .02 |
| 2 positive remarks | | 1 | .63*** | -.33** | -.47*** | -.37** | .01 |
| 3 warmth | | | 1 | -.22 | -.34** | -.23* | .03 |
| 4 overall negative EE | | | | 1 | .88*** | .87*** | .76*** |
| 5 criticism | | | | | 1 | .75*** | .45*** |
| 6 hostility | | | | | | 1 | .44*** |
| 7 emotional over-involvement | | | | | | | 1 |

*Note.* ***p<.001; **p<.01; *p <.05

**FMSS.**

According to the FMSS ratings, 19 (23.8%) relatives were categorized as both high overall negative and overall positive EE; 33 (41.3%) were categorized as high overall negative EE only while 21 (26.3%) were categorized as high overall positive EE only. Furthermore, 13 (16.3%) to 44 (55%) relatives were categorized as both high overall negative EE as well as high on one of the three negative sub-EE. Twenty-six (32.5%) to thirty-one (38.8%) were categorized as both high overall positive EE as well as high on one of the two positive sub-EE. Four (5%) met the criteria for high-CC, high-EOI and high-hostility; and 3 (3.8%) met the criteria for high-positive remarks, high-warmth and high-EOI. Table 8 reported overall and sub-EE combinations assessed by FMSS.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 8
*Overall and Sub- EE Combinations Assessed by FMSS (Inclusive)*

| Combination | N | % |
|---|---|---|
| 1 High overall negative EE & | | |
| High overall positive EE | 19 | 23.8 |
| High EOI | 24 | 30 |
| High CC | 44 | 55 |
| High hostility | 13 | 16.3 |
| 2 High overall positive EE & | | |
| High positive remarks | 26 | 32.5 |
| High warmth | 31 | 38.8 |
| 3 High EOI & | | |
| High CC | 17 | 21.3 |
| High hostility | 5 | 6.3 |
| High positive remarks | 17 | 21.3 |
| High warmth | 7 | 8.8 |
| 4 High CC & | | |
| High hostility | 11 | 13.8 |
| 6 High positive remarks & | | |
| High warmth | 17 | 21.3 |

**Relationship between FMSS and Self-report EE Measures**

**Correlations.**

Spearman's correlations were performed to test the association of FMSS and self report measures assessing relatives' expressed emotion (EE). FMSS overall negative EE was not significantly correlated with overall negative EE obtained from the self-report measures ($r = .18$, $p > .05$) while binary FMSS overall positive EE was significantly and positively correlated with the one from the self-report measures ($r = .48$, $p < .001$). The correlations between the FMSS EE sub-scores and the corresponding self-report ones ranged from .20 to .31. Table 9 showed the correlations between FMSS and self-report overall and sub-EE.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 9
*Correlations between FMSS and Self-report Overall and Sub-EE*

| Variables | r |
|---|---|
| FMSS and self-report | |
| CC | .23 |
| EOI | .20 |
| Hostility | .20 |
| Positive remarks | .31* |
| Warmth | .23* |
| Overall positive EE | . 48*** |
| Overall negative EE | .18 |

*Note.* *p < .05, **p< .01, ***p< .001

**T-test.**

The relatives who were categorized as high FMSS overall negative EE had significantly lower scores of self- report overall positive EE (mean difference= 1.16, t(69)= 3.13, p= <.05) than the low FMSS overall negative EE group. The scores of overall negative EE were not significantly different between the two groups (mean difference= 0.98, t(75)= -1.61, p> .05). The relatives who were categorized as high FMSS overall positive EE had significantly higher scores of self-report overall positive EE (mean difference= 1.84, t(62)= -4.98, p< .001) than the low FMSS overall positive EE group. However, the scores of self-report overall negative EE were not significantly different between the two groups (mean difference= 1.01, t(75)= 1.78, p> .05)

**Relationship between Demographic Characteristics, Self-report EE and Outcome Variables**

Pearson correlation, spearman's correlation, t-test, F-test, chi-square test were used to examine whether the demographic information of both relatives and PPD was associated with the independent and dependent variables. Only age and education of PPD, relatives' salary and whether both parties lived together or not were associated with those variables. Specifically, PPD' age was found to be associated with self- report overall negative EE (r= -0.37, p< .05) and life satisfaction of relatives (r= 0.37, p<.05) or PPD (r= 0.24, p<.05); PPD'

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
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education was associated with their own life satisfaction (r= -0.30, p<.05) and psychiatric symptoms (r= 0.26, p<.05); and whether they lived together or not was associated with self-report overall negative EE ((t(78)= -2.08, p< .05); (r= .23, p<.05)) and relatives' life satisfaction ((t(78)= 2.17, p<.05); (r= .24, p< .05)). No other associations were found between the demographic information of the relatives or PPD with all independent or dependent variables (ps >0.05). Table 10 reported the correlations between descriptive statistics and major variables.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 10

*Descriptive Statistics and Correlation Results among Independent and Dependent Variables*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Relative's age** | 1 | .06 | .12 | -.24* | -.07 | .02 | -.32** | .23* | .22 | .03 | -.26* | .07 | -.08 | -.21 | .11 | .01 | .18 | .12 |
| **2. PPD's age** | | 1 | -.07 | -.01 | .32* | -.23 | .12 | -.29 | .62** | -.18 | -.07 | -.23* | .15 | -.37** | .05 | -.17 | .24* | .37** |
| **3. Relative's gender** [a] | | | 1 | .04 | -.41** | -.19 | -.38** | .14 | .03 | -.05 | -.28* | -.15 | .02 | .13 | .00 | -.03 | -.16 | .00 |
| **4. PPD's gender** [a] | | | | 1 | .17 | .10 | .12 | -.01 | -.14 | .14 | -.01 | .13 | .16 | .03 | -.10 | .13 | -.11 | .07 |
| **5. Relative's salary** [b] | | | | | 1 | .19 | .36* | -.14 | .15 | -.09 | -.08 | -.15 | .06 | -.25 | -.09 | .13 | .17 | .29 |
| **6. PPD's salary** [b] | | | | | | 1 | -.03 | .13 | -.18 | -.05 | -.05 | .09 | .15 | -.15 | .00 | .07 | .04 | .05 |
| **7. Relatives' education** [c] | | | | | | | 1 | .04 | .06 | -.03 | .15 | .00 | .04 | -.03 | -.02 | .05 | .04 | -.18 |
| **8. PPD's education** [c] | | | | | | | | 1 | -.13 | -.03 | -.13 | .00 | -.04 | .12 | -.22 | .26* | -.30** | -.15 |
| **9. Duration of illness** | | | | | | | | | 1 | -.17 | .00 | -.14 | -.11 | - .17 | .051 | -.09 | .11 | .22 |
| **10. Interaction by days** | | | | | | | | | | 1 | .22 | .88** | -.18 | .19 | -.19 | .14 | -.04 | -.20 |
| **11. Interaction by times over phone** | | | | | | | | | | | 1 | .30** | .16 | .04 | -.05 | -.02 | .01 | -.07 |
| **12. Lived together or not** [d] | | | | | | | | | | | | 1 | -.19 | .23 | -.13 | .11 | .000 | -.24* |
| **13. Overall Positive EE** | | | | | | | | | | | | | 1 | -.30** | .28* | -.29* | .28* | .25* |
| **14. Overall Negative EE** | | | | | | | | | | | | | | 1 | -.23* | .18 | -.22 | -.45** |
| **15. PPD's empowerment** | | | | | | | | | | | | | | | 1 | -.58** | .64* | .09 |

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

| | | | |
|---|---|---|---|
| **16. PPD's psychiatric symptoms** | 1 | -.57* | -.18 |
| **17. PPD's life satisfaction** | | 1 | .27* |
| **18. Relative's life satisfaction** | | | 1 |

*Note.* *$p$< .05, **$p$< .01, ***$p$< .001

[a] Coding for relative's and PPD's gender: 0 (female); 1(male).

[b] Coding for relative's and PPD's salary: 1 ($5000 or below); 2($5001- $10000); 3($10001-$20000); 4($20001- $30000); 5($30001 or above).

[c] Coding for relative's and PPD's education: 1 (illiterate); 2(primary); 3(junior high); 4(senior high or form 6 or 7); 5(associate degree or bachelor degree; 6(graduate school or above).

[d] Coding for living condition: 0 (relatives did not live with PPD); 1 (relatives lived with PPD).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

## Relatives' EE: Breakdown by Demographic Characteristics

### By relative's gender.

Relatives who were females had higher scores on all the expressed emotion scales than the males. However, all the comparisons were not significant (ps> .05).

### By PPD's gender.

PPD who were females tended to receive higher levels of all overall EE and sub-EE and those who were males tended to receive higher level of hostility. All the comparisons were not significant (ps> .05).

### By living condition.

#### *Self-report.*

Relatives who lived with PPD had higher level of EOI ($p<.05$); higher level of CC (ns) and level of hostility ($p<.05$) as well as overall negative EE ($p<.05$); lower level of positive remarks (ns) and warmth (ns) as well as overall positive EE (ns) (see Table 11).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 11

*Relatives' Levels of Expressed Emotion (EE), as Assessed by Questionnaire, and Whether They Lived with PPD or Not Using T-test*

| | | Lived together | | |
|---|---|---|---|---|
| | | Yes | No | |
| Variables | M (SD) | M (SD) | M (SD) | *t*(78) |
| Emotional over involvement (EOI) | 2.12 (.62) | 2.26 (.57) | 1.98 (.64) | 2.00* |
| Criticism (CC) | 2.00 (.55) | 2.07 (.54) | 1.94 (.56) | 1.09 |
| Hostility | .94 (.62) | 1.08 (.63) | .79 (.58) | 2.09* |
| Positive Remarks | 2.49 (.77) | 2.36 (.79) | 2.63 (.74) | -1.57 |
| Warmth | 2.13 (.45) | 2.06 (.52) | 2.21 (.37) | -1.50 |
| Overall positive EE | .00 (1.81) | -.33 (1.97) | .35 (1.57) | -1.70 |
| Overall negative EE | .00 (2.51) | .56 (2.36) | -.58 (2.55) | 2.08* |

*Note.* *$p < .05$

***FMSS.***

Five (12.8%) to 24 (30%) relatives who did not live with the PPD in the past two months before the interview were categorized as high on one of the following: emotional over-involvement, criticism, hostility, positive remarks, warmth, overall negative EE or overall positive EE. On the other hand, 8 (10%) to 28 (35%) relatives who lived with the PPD were classified as high on one of the above overall and sub-EE (see Table 12).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 12

*Relatives' Levels of Expressed Emotion (EE), as Assessed by FMSS, and Whether They Lived with PPD or Not*

| High on | Lived together | |
|---|---|---|
| | Yes (N= 41) | No (N= 39) |
| Emotional over-involvement (EOI) | 13 | 11 |
| Criticism (CC) | 23 | 21 |
| Hostility | 8 | 5 |
| Positive remarks | 13 | 13 |
| Warmth | 15 | 16 |
| Overall positive EE | 20 | 20 |
| Overall negative EE | 28 | 24 |

**By types of relationship.**

***Self- report.***

Although relatives who were parents had the highest level of EOI (M = 2.28); Brother-in-law and uncle had the highest level of CC (M= 2.20); spouses had the highest level of hostility (M= 1.10), level of positive remarks (M= 2.63), level of warmth (M= 2.32), overall negative EE (M= .41) and overall positive EE (M= .59). There were no significant differences in all aspects of EE by relationship of the relatives to PPD (ps > 0.05) (see Table 13).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 13

*Relatives' Levels of Expressed Emotion (EE), as Assessed by Questionnaire and The Relationship between The Relatives and PPD*

| | | Relationship | | | | |
|---|---|---|---|---|---|---|
| | Total (N= 80) | Parents (N= 47) | Siblings (N= 18) | Offspring (N= 5) | Spouse (N= 8) | Others (N= 2) |
| | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) |
| Emotional over involvement (EOI) [a] | 2.12 (.62) | 2.28 (.60) | 1.82 (.55) | 2.00 (.37) | 2.19 (.72) | 1.25 (.35) |
| Criticism (CC) [a] | 2.00 (.55) | 2.04 (.55) | 1.86 (.46) | 2.14 (.72) | 2.03 (.61) | 2.20 (.99) |
| Hostility [a] | .94 (.62) | .98 (.63) | .78 (.60) | 1.03 (.66) | 1.10 (.66) | .67 (.47) |
| Positive Remarks [a] | 2.49 (.77) | 2.46 (.84) | 2.57 (.65) | 2.48 (.66) | 2.63 (.76) | 1.90 (.99) |
| Warmth [a] | 2.13 (.45) | 2.09 (.47) | 2.17 (44) | 2.15 (.23) | 2.32 (.56) | 2.00 (.00) |
| Overall positive EE [a] | .00 (1.81) | -.12 (1.96) | .17 (1.50) | .02 (1.22) | .59 (2.05) | -1.06 (1.28) |
| Overall negative EE [a] | .00 (2.51) | .36 (2.45) | -1.02 (2.28) | .19 (2.75) | .41 (2.96) | -1.51 (3.14) |

[a] There were no significant differences in all aspects of EE by relationship of the relatives to PPD (ps > 0.05)

***FMSS.***

Assessed by FMSS, twenty five parents (53.2%); 9 (50%) siblings; 3 (60%) offspring; 3 (37.5%) spouses were categorized as high overall positive EE. On the other hand, 63.8% (n= 30) parents; 55.6% (n= 10) siblings; 60% (n= 3) offspring; 87.5% (n= 7) spouses were categorized as high overall negative EE.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Covariates Related to PPD's Life Satisfaction Controlled for**

Hierarchical Regression was performed on PPD's life satisfaction. PPD's age, education and symptomatology was entered into the first regression block. Subsequently, PPD's empowerment was entered into the second block followed by relatives' positive and negative EE.

**Self-report EE.**

As shown in Table 14, in block 1 the control variables which were PPD's age, education and symptomatology explained 35.9% of the variance in the life satisfaction of PPD. Those who had more psychiatric symptoms were more likely less satisfied with their lives (beta= -.51, $p < .01$). PPD's age, education and relatives' EE were not related to PPD's life satisfaction. Entering PPD's empowerment into the second block explained an additional 14.8% of the variance. PPD who reported higher empowerment level were more likely to report higher life satisfaction (beta= .48, $p < .01$). Entering self-report positive and negative EE into the third block explained 0% additional variance. After PPD's age, education, symptoms as well as empowerment controlled for, positive and negative EE were not significantly related to life satisfaction ($p > .05$).

**FMSS EE.**

As shown in Table 14, in block 1 the control variables which were PPD's age,

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

education and symptomatology explained 34.4% of the variance in the life satisfaction of PPD. Those who had more psychiatric symptoms were more likely less satisfied with their lives (beta= -.50, p< .01). PPD's age, education and relatives' EE were not related to PPD's life satisfaction. Entering PPD's empowerment into the second block explained an additional 16.2% of the variance. PPD who reported higher empowerment level were more likely to report higher life satisfaction (beta= .51, p< .01). Entering FMSS positive and negative EE into the third block explained 0% additional variance. After PPD's age,education, symptoms as well as empowerment controlled for, positive and negative EE were not significantly related to life satisfaction (p< .05).

Table 14

*Hierarchical Regression of PPD's Empowerment and Relatives' self-report EE(FMSS EE) on PPD's Life Satisfaction* [a]

| Variable | Block 1 [b] | Block 2 [c] | Block 3 [d] |
|---|---|---|---|
| PPD's | | | |
| Age | .11 (.13) | .14 (.18*) | .15 (.18*) |
| Education | -.15 (-.14) | -.11 (-.10) | -.11 (-10) |
| Symptomatology | -.51*** (-.50 ***) | -.24* (-.19) | -.23* (-.19) |
| PPD's empowerment | | .48*** (.51***) | .47*** (.51***) |
| Relatives' | | | |
| Positive EE | | | .05 (.02) |
| Negative EE | | | .03 (.01) |

[a] Standardized beta coefficients: * p< .05, ** p< .01, *** p< .001

[b] $R^2$= .36 (.34) , F= 13.82 (12.40), df= 3 (3) and 74 (71), p< .001 (p< .001)

[c] $R^2$= .15 (.16), F= 18.79 (17.94), df= 1 (4) and 73 (70), p< .001 (p< .001)

[d] $R^2$= .00 (.00), F= 12.31 (11.63), df= 2 (6) and 71 (68), p< .001 (p< .001)

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Relationship between Relatives' Expressed Emotion and Psychosocial Well-being of Relatives and PPD**

Relationship of self report EE and FMSS EE with major dependent variables was tested respectively by path analysis using EQS 6.1. See Figure 1 for the proposed model. An alternative model was also tested to examine the nature of relationship between relatives' EE and their own life satisfaction.

**Proposed model (Model 1): Self- report and FMSS.**

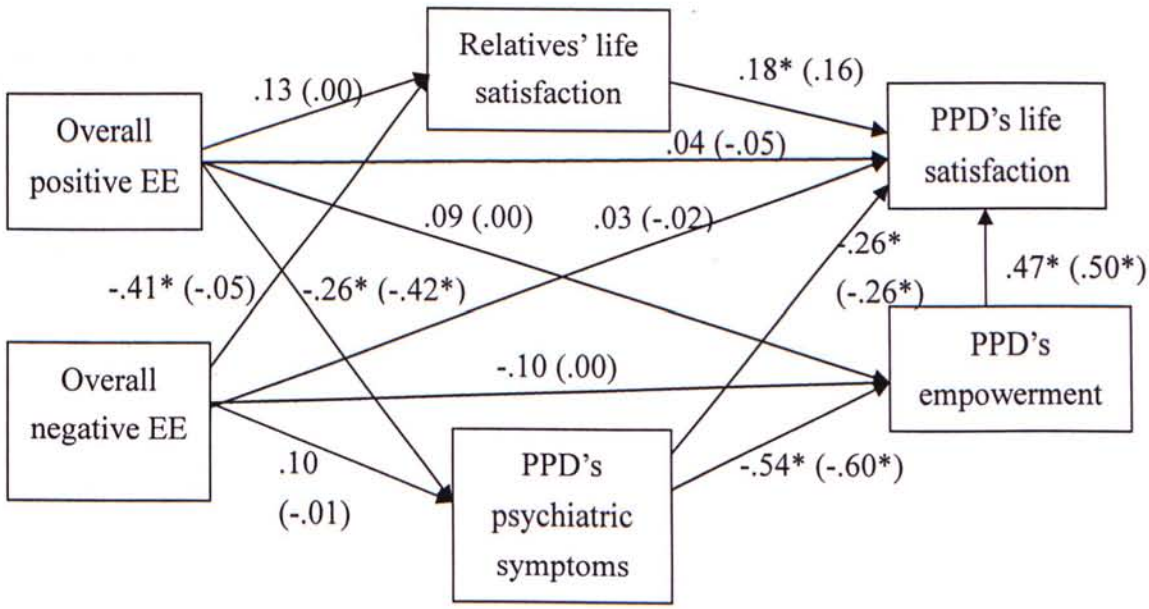


*Figure 2.* Proposed model (Model 1) (standardized self-report estimates (FMSS estimates))

***Comparing self-report and FMSS within model 1.***

*Self- report.*

The fit of this model was satisfactory ($X^2$= 1.26, df= 2, p>.05;

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

CFI= 1.00; NNFI=1.05; RMSEA= .00 (90% CI: .00- .19). The direct paths from overall negative EE and overall positive EE to PPD's empowerment were not significant (beta= -.10 and beta= .09, p>.05) (see Figure 2). In addition, the direct paths from the overall negative EE as well as overall positive EE to PPD's life satisfaction were not significant (beta= .03 and beta= .04, p>.05). The R-squares explained by Model 1 were .22, .50, .36 and .09 for relatives' life satisfaction, PPD's life satisfaction, PPD's empowerment and PPD's psychiatric symptoms respectively (see Table 15).

*FMSS.*

The fit of this model was satisfactory ($X^2$= 1.76, df= 2, p>.05; CFI= 1.00; NNFI=1.02; RMSEA= .00 (90% CI: .00- .22). The direct paths from overall negative EE and overall positive EE to PPD's empowerment were not significant (beta= -.05; beta= .10, p>.05). In addition, the direct paths from the latter ones to PPD's life satisfaction were not significant (beta= -.02; beta= -.05, p>.05). The R-squares explained by Model 1 were .00, .47, .38 and .17 for relatives' life satisfaction, PPD's life satisfaction, PPD's empowerment and PPD's psychiatric symptoms respectively.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 15

*Comparison between Measures within Model 1*

| Proposed model (Model 1) | $X^2$ | *df* | Model AIC | NFI | NNFI | CFI | AGFI | RMSEA | Relative's life satisfaction [b] | PPD's life satisfaction [b] | PPD's empowerment [b] | PPD's symptoms [b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $R^2$ | $R^2$ | $R^2$ | $R^2$ |
| 1. self- report | 1.26 [a] | 2 | -2.74 | .99 | 1.05 | 1.00 | .95 | .00 | .22 | .50 | .36 | .09 |
| 2. FMSS | 1.76 [a] | 2 | -2.24 | .99 | 1.02 | 1.00 | .92 | .00 | .00 | .47 | .38 | .17 |

[a] P-value > .05

[b] $R^2$ (standardized solution)

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Refined model (model 2): self- report and FMSS.**

In Model 2 (Figure 3), the two direct paths from overall negative EE and overall positive EE to PPD' empowerment were removed because they were not significant paths (ps>.05) in Model 1.

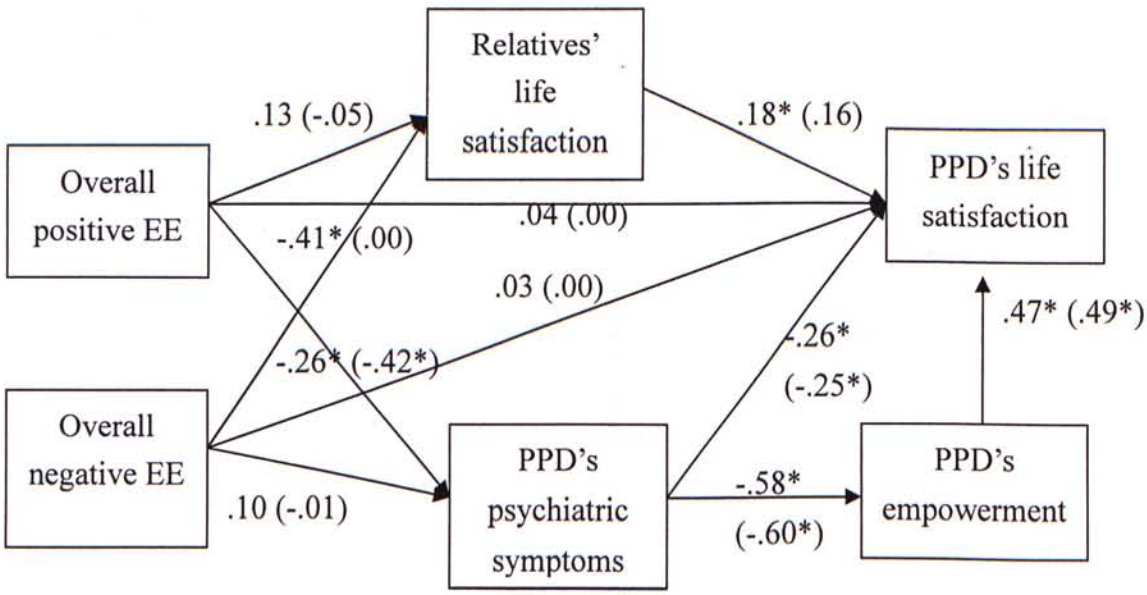


*Figure 3.* Revised model (model2) (standardized self- report direct estimates (FMSS direct estimates))

**Comparing between models using different measures (model 1 vs model 2).**

The chi-square changes from Model 1 to Model 2 for both self report ($X^2$=2.74 <5.99, df=2, p> .05) (Table 16) and FMSS model ($X^2$=1.80 <5.99, df=2, p> .05) (Table 17) were not significant and thus restricted model which carried a higher degree of freedom (Model 2) was preferred.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 16

*Comparison between Models Using Self-report Measure (Model 1 vs Model 2)*

| | *X2* | *df* | model AIC | NFI | NNFI | CFI | AGFI | RMSEA | △X2 (df) |
|---|---|---|---|---|---|---|---|---|---|
| 1. self report (model 1) | 1.26 [a] | 2 | -2.74 | .99 | 1.05 | 1.00 | .95 | .00 | |
| 2. self report (model 2) | 4.00 [a] | 4 | -4.00 | .97 | 1.00 | 1.00 | .91 | .00 | 2.74(2) |

[a] P-value > .05

Table 17

*Comparison between Models Using FMSS (Model 1 vs Model 2)*

| | $X^2$ | *df* | model AIC | NFI | NNFI | CFI | AGFI | RMSEA | $\triangle X^2$ *(df)* |
|---|---|---|---|---|---|---|---|---|---|
| FMSS (model 1) | 1.76[a] | 2 | -2.24 | .99 | 1.02 | 1.00 | .92 | .00 | |
| FMSS (model 2) | 3.56 [a] | 4 | -4.44 | .97 | 1.02 | 1.00 | .92 | .00 | 1.80 (2) |

[a] P-value > .05

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Comparing self-report and FMSS within model 2.**

*Self- report.*

The fit of this model was satisfactory ($X^2$= 4.00, df= 4, p>0.05; CFI= 1.00; NNFI=1.00; RMSEA= .00 (90% CI: .00- .17). The direct paths from overall negative EE and overall positive EE to PPD's life satisfaction were not significant (beta= -.03; beta= .04, p>0.05). The R-squares explained by Model 2 were .22, .49, .34 and .09 for relatives' life satisfaction, PPD' life satisfaction, PPD' empowerment and PPD' psychiatric symptoms respectively. Table 18 presented the comparison between self-report and FMSS within model 2.

*FMSS.*

The fit of this model was satisfactory ($X^2$= 1.76, df= 2, p>.05; CFI= 1.00; NNFI=1.02; RMSEA= .00 (90% CI: .00- .22). The direct paths from overall negative and overall positive EE to PPD's life satisfaction were not significant (beta= .02 and beta= -.05, p>.05). The R-squares explained by Model 2 were .00, .48, 36 and .17 for relatives' life satisfaction, PPD' life satisfaction, PPD' empowerment and PPD's psychiatric symptoms respectively (see Table 18).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 18

*Comparison between measures within model 2*

| Refined model (Model 2) | $X^2$ | df | model AIC | NFI | NNFI | CFI | AGFI | RMSEA | Relative's life satisfaction [b] | PPD's life satisfaction [b] | PPD's empowerment [b] | PPD's symptoms [b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $R^2$ | $R^2$ | $R^2$ | $R^2$ |
| self report | 4.00 | 4 [a] | -4.00 | .97 | 1.00 | 1.00 | .91 | .00 | .22 | .49 | .34 | .09 |
| FMSS | 3.56 | 4 [a] | -4.44 | .97 | 1.02 | 1.00 | .92 | .00 | .00 | .48 | .36 | .17 |

[a] P-value > .05

[b] $R^2$ (standardized solution)

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Final model (Model 3a): Self- report and FMSS**

In Model 3a (Figure 4), the two direct paths from overall negative EE and overall positive EE to PPD's life satisfaction were removed because they were not significant paths (ps>.05) in Model 2.

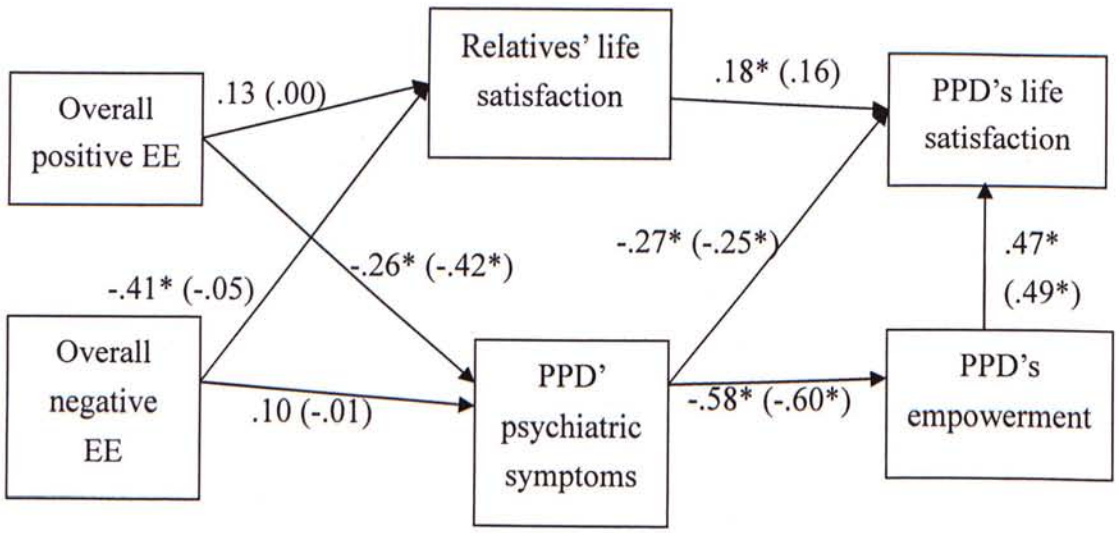


*Figure 4.* Final model (model 3a) (standardized self-report direct estimates (FMSS direct estimates))

**Comparing between models within measure (model 2 vs model 3a).**

The chi-square changes from Model 2 to Model 3a for both self report model ($X^2$=.23 <5.99, df=2, p> .05) (Table 19) and FMSS one ($X^2$=.46 <5.99, df=2, p> .05) (Table 20) were not significant and thus restricted model which carried a higher degree of freedom (Model 3) was preferred.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 19

*Comparison between models using self-report measure (Model 2 vs Model 3a)*

| | $X^2$ | df | model AIC | NFI | NNFI | CFI | AGFI | RMSEA | $X^2(df)$ |
|---|---|---|---|---|---|---|---|---|---|
| self report (model 2) | 4.00 [a] | 4 | -4.00 | .97 | 1.00 | 1.00 | .91 | .00 | |
| self report (model 3a) | 4.23 [a] | 6 | -7.77 | .97 | 1.04 | 1.00 | .94 | .00 | .23 (2) |

[a] P-value > .05

Table 20

*Comparison between models using FMSS (Model 2 vs Model 3a)*

| | $X^2$ | df | model AIC | NFI | NNFI | CFI | AGFI | RMSEA | $X^2(df)$ |
|---|---|---|---|---|---|---|---|---|---|
| FMSS (model 2) | 3.56 [a] | 4 | -4.44 | .97 | 1.02 | 1 | .92 | .00 | |
| FMSS (model 3a) | 4.02 [a] | 6 | -7.98 | .97 | 1.05 | 1 | .94 | .00 | .46 (2) |

[a] P-value > .05

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Comparing self-report and FMSS within model 3a.**

*Self-report.*

The fit of this model was satisfactory ($X^2$= 4.23, df= 6, p>0.05; CFI= 1.00; NNFI=1.04; RMSEA= 0.00 (90% CI: 0.00- .12). All the direct paths in Model 3a were significant (ps < .05) except for the one from overall positive EE to relatives' life satisfaction (beta= .13, p>.05) and the one from overall negative EE to PPD' level of symptoms (beta= .10, p>.05). The R-squares explained by Model 3 were .22, .49, .34 and .09 for relatives' life satisfaction, PPD' life satisfaction, PPD' empowerment and PPD' psychiatric symptoms respectively (see Table 21). Table 22 showed the final standardized direct parameters assessed by self-report EE measures as well as FMSS.

*FMSS.*

The fit of this model was satisfactory ($X^2$= 4.02, df= 2, p>0.05; CFI= 1.00; NNFI=1.05; RMSEA= 0.00 (90% CI: 0.00- 0.12). All the direct paths in model 3 were significant (p<.05) except for the ones from overall negative EE (beta= -.05, p>.05) and overall positive EE to relatives' life satisfaction (beta= .00, p>.05); the one from overall negative EE to PPD' level of symptoms (beta=-.01, p> .05); and the one from relatives' life

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

satisfaction to PPD' one (beta= .16, p>.05). The R-squares explained by Model 3a were .00, .47, .36 and .17 for relatives' life satisfaction, PPD' life satisfaction, PPD' empowerment and PPD' psychiatric symptoms respectively (see Table 21).

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 21

*Comparison between Measures within Model 3a*

| Final model | $X^2$ | *df* | model AIC | NFI | NNFI | CFI | AGFI | RMSEA | Relative's life satisfaction [b] | PPD's life satisfaction [b] | PPD's empowerment [b] | PPD's symptoms [b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $R^2$ | $R^2$ | $R^2$ | $R^2$ |
| self report | 4.23 [a] | 6 | -7.77 | .97 | 1.04 | 1 | .94 | .00 | .22 | .49 | .34 | .09 |
| FMSS | 4.02 [a] | 6 | -7.98 | .97 | 1.05 | 1 | .94 | .00 | .00 | .47 | .36 | .17 |

[a] P-value > .05

[b] $R^2$ (standardized solution)

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 22

*Standardized Direct Parameter Estimates: Self-report EE (FMSS)*

| | Overall positive EE | Overall negative EE | Relatives' life satisfaction | PPD' psychiatric symptoms | PPD' empowerment |
|---|---|---|---|---|---|
| PPD' life satisfaction= | | | .18* (.16) | -.27* (-.25*) | .47* (.49*) |
| Relatives' life satisfaction= | .13 (-.05) | -.41* (.00) | | | |
| PPD' empowerment= | | | | -.58* (-.60*) | |
| PPD' psychiatric symptoms= | -.26* (-.42*) | .10 (-.01) | | | |

**Overall comparison between measures across models.**

Given the non-significant chi-square change (ps> .05), Model 3a (with 4 insignificant direct paths removed from model 1) was preferred because it was a more restricted model. In terms of types of EE measure, it was shown that they both had excellent goodness of model fit. The only difference was that the self-report measure explained more variances in the relative's life satisfaction while FMSS explained more in the PPD's symptomatology.

**Alternative model (Model 3b): Self- report and FMSS.**

To examine the nature and direction of relationship between relatives' EE and life satisfaction, an alternative model (Model 3b) (see Figure 5) was also tested by path analysis.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

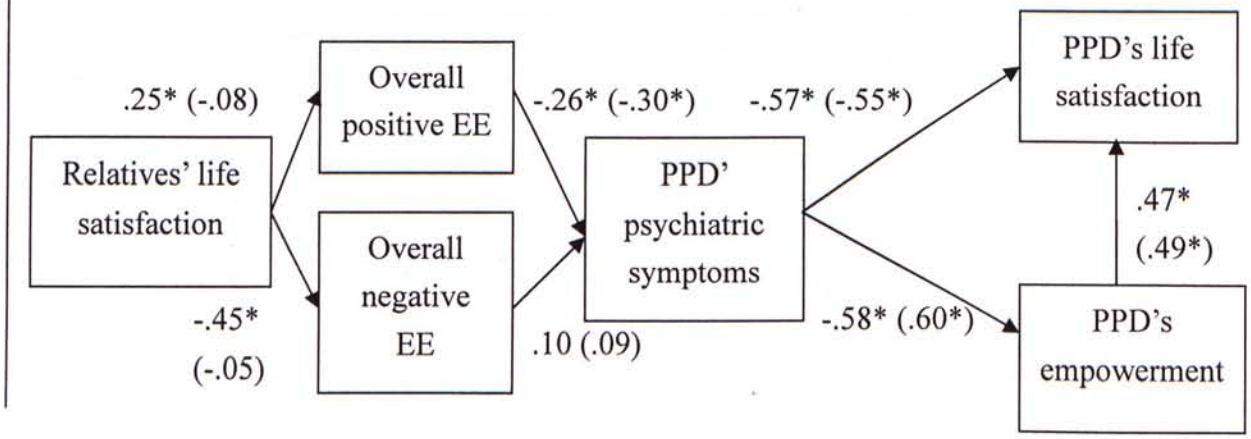


*Figure 5.* Alternative model (model 3b) (standardized self-report direct estimates (FMSS direct estimates))

**Comparing between models within measures (model 3a vs model 3b).**

The fit of Model 3a was excellent ((self-report: $X^2$= 4.23, df= 6, p>0.05; CFI= 1.00; NNFI=1.04; RMSEA= .00 (90% CI: .00- .12); (FMSS: $X^2$= 4.02, df= 2, p>0.05; CFI= 1.00; NNFI=1.05; RMSEA= .00 (90% CI: .00- .12). On the other hand, the one for Model 3b was acceptable ((self-report: $X^2$= 12.69, df= 8, p>.05; CFI= .96; NNFI=.92; model AIC= -3.31; RMSEA=.09 (90% CI: .00- .17); (FMSS model 3b: $X^2$= 13.44, df= 8, p>.05;CFI= .94; NNFI= .89; model AIC= -2.56; RMSEA= .10 (90% CI: .00- .18)) (Table 23 and Table 24). Since the fit of Model 3a was more satisfactory and its model AIC was smaller than Model 3b, Model 3a was preferred.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 23

*Comparison between models using self-report measure (Model 3a vs Model 3b)*

| | $X^2$ | df | model AIC | NFI | NNFI | CFI | AGFI | RMSEA |
|---|---|---|---|---|---|---|---|---|
| self report (model 3a) | 4.23 [a] | 6 | -7.77 | .97 | 1.04 | 1.00 | .94 | .00 |
| self report (model 3b) | 12.69 [a] | 8 | -3.31 | .90 | .92 | .96 | .86 | .09 |

[a] P-value > .05

Table 24

*Comparison between models using FMSS (Model 3a vs Model 3b)*

| | $X^2$ | df | model AIC | NFI | NNFI | CFI | AGFI | RMSEA |
|---|---|---|---|---|---|---|---|---|
| FMSS (model 3a) | 4.02 [a] | 6 | -7.98 | .97 | 1.05 | 1.00 | .94 | .00 |
| FMSS (model 3b) | 13.44 [a] | 8 | -2.56 | .87 | .89 | .94 | .86 | .10 |

[a] P-value > .05

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Comparing two measures within model 3b.**

*Self- report.*

The fit of this model was acceptable ($X^2$= 12.69, df= 8, p>.05; CFI= .96; NNFI=.92; model AIC= -3.31; RMSEA= .09 (90% CI: .00- .17). The direct path from overall negative EE to PPD's psychiatric symptoms were not significant (beta= .10, p>.05) (see Figure 5). The R-squares explained by Model 3b were .20, .06, .47, .33 and .08 for relatives' overall negative EE, overall positive EE, PPD's life satisfaction, PPD's empowerment and PPD's psychiatric symptoms respectively (see Table 25).

*FMSS.*

The fit of this model was acceptable ($X^2$= 13.44 , df= 8, p>.05; CFI=.94; NNFI=.89; model AIC= -2.56; RMSEA=.10 (90% CI: .00- .18). The direct paths from relatives' life satisfaction to overall negative EE and overall positive EE were not significant (beta= -.05; beta= -.08, p>.05). In addition, the direct path from overall negative EE to PPD's psychiatric symptoms was not significant (beta= .09, p>.05) (see Figure 5). The R-squares explained by Model 3b were .00, .01, .46, .36 and .10 for relatives' overall

CC: Criticism
EE: Expressed emotion
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PPD: People with psychotic disorders

negative EE, overall positive EE, PPD's life satisfaction, PPD's empowerment and PPD's psychiatric symptoms respectively (see Table 25).

**Overall comparison between model 3a and model 3b.**

Given the model fit and model AIC, model 3a was preferred.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Table 25

*Comparison between Measures within Model 3b*

| Proposed model (Model 3b) | $X^2$ | *df* | Model AIC | NFI | NNFI | CFI | AGFI | RMSEA | Relative's overall negative EE[b] | Relative's overall positive EE[b] | PPD's life satisfaction[b] | PPD's empowerment[b] | PPD's symptoms[b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $R^2$ | $R^2$ | $R^2$ | $R^2$ | $R^2$ |
| 1. self- report | 12.69[a] | 8 | -3.31 | .90 | .92 | .96 | .86 | .09 | .20 | .06 | .47 | .33 | .08 |
| 2. FMSS | 13.44[a] | 8 | -2.56 | .87 | .89 | .94 | .86 | .10 | .00 | .01 | .46 | .36 | .10 |

[a] P-value > .05

[b] $R^2$ (standardized solution)

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

## Discussion

While psychotic disorders were often associated with pathological terms, the relatives seemed to be blamed for the relapse in people with those mental illnesses in prior clinical research. In addition, prior studies focused primarily on the risk factors of relapses (CC, hostility and EOI), largely overlooking the effects of the positive dimensions of EE (positive remarks and warmth), which were potential protective factors against relapse (Lopez et al., 2004). Moreover, the impact of EE on the relatives themselves who suffer from the burden of care-giving is neglected while the relatives' psychosocial well-being may also affect the quality of their care-giving or relationship with PPD. Therefore, this study sought to investigate the effect of relatives' expressed emotion on the psychosocial well-being of PPD as well as the relatives themselves. In addition, given that EE studies assessing the full construct of EE were scarce, the present study also attempted to assess all five components of EE and investigated the reliability as well as the predictive validity of both self-report EE measure and modified FMSS. Overall, results supported the hypothesis that the self-report EE measure as well as the modified FMSS achieved acceptable reliabilities and predictive validities. Most importantly, consistent with the hypotheses, it was found that relatives' expressed emotion was a significant predictor of the psychiatric symptoms in the PPD as well as the psychosocial well-being in both PPD

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

(empowerment and life satisfaction) and their relatives (life satisfaction).

## Expressed Emotion

### Scoring scheme for negative and positive EE scores.

On the basis of revised FMSS coding scheme, two EE coders were trained by the author to code the audio clips. Moderate to substantial inter-rater reliablities (Landis & Koch, 1977) were established for both positive and negative EE. Two raters had excellent agreement (69-88%) with each other in terms of classification of overall and sub-EE suggesting that their ratings were reliable. However, due to the small sample size and the accuracy of coder's ratings, the confidence interval showed that the reliabilities were not as stable as expected given that they were out of the range of 0 to 1. Thus, further calibration and revision might be needed for this FMSS coding scheme.

Regarding the self-report EE scores, results from exploratory factor analysis indicated that criticism, emotional over-involvement, and hostility clustered together forming overall negative EE, whereas positive remarks and warmth clustered together forming overall positive EE. This finding validated the negative as well as positive EE construct in Hong Kong.

### FMSS EE categorization.

On the basis of the FMSS original coding scheme, EE results in the present

CC: Criticism
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study showed a much higher rate of negative EE than in most studies assessing EE using the CFI. This suggested that FMSS might suffer from the problem of oversensitivity in the Hong Kong population. Thus, its coding scheme was revised in the present study. For the modified FMSS exclusive EE categorization, about forty percent were categorized as high overall negative EE while about a quarter of them were categorized as high overall positive EE. To be specific, high criticism group comprised of the most amount of relatives while the high hostility group had the least amount. This was consistent with prior study (Philips & Xiong, 1995) showing that more relatives were categorized as high critical ones than high hostile ones. Taken as a whole, these findings suggested that relatives in Hong Kong expressed more negative EE than the positive ones towards PPD. However, it did not necessarily mean that Hong Kong relatives were as risk factors to PPD as it seemed to be since critical comments, hostility as well as emotional over-involvement might be more acceptable in the Chinese culture (Heine, 2001; Phillips & Xiong, 1995).

**FMSS & self-report overall and sub-EE.**

Results of both FMSS and self-report EE showed that overall negative and positive EE were related but distinctive from each other. In terms of self-report EE scores, results suggested that the higher the overall positive EE the lower the

CC: Criticism
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PPD: People with psychotic disorders

overall negative EE, which confirmed with the findings of the first EE study (Brown et al., 1972). However, as opposed to Brown et al. (1972), the moderate association (r= -.45) between the self-report overall positive and self-report negative EE suggested that the former one was not just a negative variation of the latter. Instead, they should be distinguished into two different variables given they could explain 20% of variances in each other.

According to the FMSS ratings, about a quarter of the relatives were categorized as both high overall negative and overall positive EE. These suggested that it is possible that Hong Kong relatives hold both negative and positive EE simultaneously. This was consistent with the finding that contradiction is more acceptable in Chinese when compared to the Westerners (Peng & Nisbett, 1999). Furthermore, slightly more than half of those who were categorized as high overall negative EE were also categorized as high critical relatives. In addition, about forty percent who were categorized as high overall positive EE were also categorized as high warm relatives. These findings revealed that high negative EE relatives tended to be more critical and the high positive EE ones tended to express more warmth towards the PPD. All in all, these findings suggested that the positive EE was distinctive from negative EE while relatives in Hong Kong might manifest both EE towards PPD.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Relationship between FMSS and self-report EE.**

According to the EE results, self-report EE measures seemed to receive a good concurrent validity with the revised FMSS. Specifically, it was revealed that the overall and sub-positive EE of revised FMSS were positively associated with the corresponding ones assessed by self-report. In addition, the self-report overall positive EE scores were significantly different between the FMSS high overall positive and FMSS high overall negative EE group. Such positive association and differentiation power, although not significant, was also found in the overall or sub-negative EE scores between the two measures. Nonetheless, these findings suggested that the self-report overall EE scores, especially the positive one, could be used to differentiate both high overall positive and negative EE assessed by revised FMSS. In other words, the self-report EE measure developed in the present study as well as the modified FMSS seemed to be a reliable measure in assessing EE. However, it was noteworthy that the low concordance of revised FMSS negative EE with self-report measure of negative EE which required further investigation in the future.

**Relationship between Demographic Characteristics, Self-report EE and Outcome Variables**

Among all demographic information of both relatives and PPD, only age and

CC: Criticism
EE: Expressed emotion
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PPD: People with psychotic disorders

education of PPD, relatives' salary and whether both parties lived together or not were associated with the independent or dependent variables in the current study. Specifically, it was found that PPD's age decreased with self- report overall negative EE and increased with life satisfaction of relatives and PPD respectively. This suggested that as the PPD became older, they received less negative expressed emotion and their relatives as well as themselves were more satisfied with their life.. This might be because we have a Confucious tradition in the Chinese culture (Heine, 2001) which urged us to pay much respect and care towards the elders. Thus, as PPD got older, their relatives expressed fewer negative EE towards them which in turn ameliorated the life satisfaction of both parties.

Besides, PPD's education was negatively associated with their own life satisfaction and positively related to their psychiatric symptoms. This suggested that the higher education the PPD received the lower level of life satisfaction as well as the higher level of psychiatric symptoms found in themselves. It might be because education level is associated with income (Bureau of Labor Statistics, 2010) and more educated people tended to have more demands and expectations from life. However, their lifestyle including occupation might be drastically different from the one before onset of psychotic disorders. Therefore, the more educated people tended to be less satisfied with life which might further worsen their psychiatric condition. On the other

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

hand, whether they lived together or not was positively associated with self- report overall negative EE and relatives' life satisfaction respectively. Specifically, relatives who lived with PPD had higher level of EOI and level of hostility as well as overall negative EE. It was consistent with the finding by Boye et al. (1999) that the family contact increased with negative EOI. In contrary, the interaction time was not associated with relatives' EE which confirmed with previous finding (Gauda, Brekke, Floyd, & Barbour, 2009).

**Covariates Related to PPD's Life Satisfaction**

According to hierarchical regression results derived from self-report and FMSS EE, PPD's empowerment still significantly predicted and explained an additional 15-16% of the variance in PPD's life satisfaction after controlling for covariates (i.e., PPD's age, education and symptomatology). Specifically, those who reported higher empowerment level were more likely to report higher life satisfaction. However, positive and negative EE, that was derived from self-report and FMSS, was not a significant factor of PPD's life satisfaction after controlling for PPD's age, education, symptoms as well as empowerment. These implied that other than symptomatology, PPD's empowerment played an important role in their life satisfaction. In other words, in addition to medication, it is essential to empower PPD so that they can lead a more satisfactory life.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

**Relationship between Relatives' Expressed Emotion and Psychosocial Well-being of Relatives and PPD**

According to the final path analysis model, relatives' expressed emotion predicted their own life satisfaction as well as the psychiatric symptoms, empowerment, and life satisfaction in PPD. Specifically, higher level of overall negative EE (CC, hostility and EOI) was associated with lower level of empowerment as well as life satisfaction in PPD. This finding supported the hypothesis of this study and confirmed prior findings that EE was associated with social functioning (O'Brien et al., 2006). However, the association between overall negative EE and psychiatric symptoms, although was negative, was non-significant suggesting that the PPD whose relatives expressed more negative EE did not have more psychiatric symptoms. This was inconsistent with our hypothesis as well as previous findings that negative EE was associated with relapse in PPD (Butzlaff & Hooley, 1998). Besides the small sample size, this might be due to the fact that this was not a longitudinal study and PPD's psychiatric symptoms instead of relapse were measured at one time-point in the current study. On the other hand, higher level of overall positive EE (positive remarks and warmth) was associated with fewer psychiatric symptoms, higher level of empowerment as well as life satisfaction in PPD. Not only these findings were consistent with the hypothesis of the present study, they also confirmed with previous

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results showing that EE was associated with psychosocial well-being (O'Brien et al., 2006) and relapse (Bertrando et al., 1993; Butzlaff & Hooley, 1998; Ivanovic et al., 1994; Lopez et al., 2004) in PPD.

In terms of the relationship between relatives' EE and their own life satisfaction, although it was found by prior studies that relatives' EE was associated with their own physical and psychological well-being (Breitborde, López, Chang, Lopelowicz & Zarate, 2009; Jenkins, 1992), whether relatives' EE predicted their own life satisfaction or the other way around was questioned. Therefore, an alternative model was examined and compared with the final proposed model in the present study to clarify the relationship between relatives' EE and their own life satisfaction. In the final proposed model, it was hypothesized that relatives' EE predicted their own life satisfaction while relatives' life satisfaction was a predictor of EE in the alternative model. Findings showed that the final proposed model could better explain the data in the present study which suggested that relatives' EE predicted their own life satisfaction. Specifically, it was found that the relatives who expressed less negative EE led a more satisfactory life.. This supported the hypothesis and was consistent with prior result showing that EOI was deleterious to relatives' psychological well-being (Breitborde et al., 2009). However, as opposed to our expectation, the relationship between overall positive EE and relatives' life satisfaction, although was

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positive as hypothesized, was non-significant in the final proposed model which suggested that relatives who expressed more positive EE did not satisfy with their life more. Since this was a cross- sectional study and the sample size for the present study was small which might affect the results, the relationship between relative's EE and their own life satisfaction should be further addressed in future longitudinal studies.

Speaking of the roles of PPD's empowerment and psychiatric symptoms as well as satisfaction with life in both PPD and their relatives, the results supported the hypotheses that they mediated the relationship between EE and PPD's life satisfaction. To be specific, the level of psychiatric symptoms and relatives' life satisfaction fully mediated the relationship between relatives' EE and PPD's life satisfaction respectively. Furthermore, empowerment mediated the association between the psychiatric symptoms and the life satisfaction of PPD. These mediation effects indicated that through relatives' life satisfaction, PPD's psychiatric symptoms and PPD's empowerment which was predicted by those symptoms, both overall negative and positive EE indirectly impacted on PPD's life satisfaction. In other words, more overall positive EE would lead to fewer PPD's psychiatric symptoms, which in turn led to better life satisfaction in PPD. Besides that, it was implied that more overall positive EE, which would lead to fewer psychiatric symptoms as well as higher level of empowerment, would in turn lead to better life satisfaction in PPD. Moreover,

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fewer overall negative EE would lead to better life satisfaction in relatives, which would further lead to better life satisfaction in PPD as well. This was consistent with previous findings that the relatives' EE affected psychiatric symptoms (e.g. Lopez et al., 2004), which further deteriorated PPD's life satisfaction (Browne et al., 1996; Dickerson et al., 1998); self-esteem (Barrowclough et al., 2003), that was associated with PPD's quality of life (Bechdolf et al., 2003; Eklund, Backstrom & Hansson, 2003); and quality of life (Smith & Greenberg, 2007) in PPD.

Other than that, the empowerment level of PPD partially mediated the effect of their own psychiatric symptoms on life satisfaction. This revealed that while fewer psychiatric symptoms would directly lead to better life satisfaction in PPD, it would also lead to more empowerment in PPD which in turn helped them lead a more satisfactory life. The mediation effect of PPD's empowerment level on the relationship between their life satisfaction and psychiatric symptoms was supported by previous finding that self-esteem and self-efficacy were associated with quality of life (Bechdolf et al., 2003; Eklund et al, 2003).

Taken as a whole, the findings of this present study did not only clarify the nature of EE-PPD's life satisfaction relationship but also found that relatives' expressed emotion impacted on their own life satisfaction. In terms of the EE-PPD's life satisfaction association, PPD's empowerment and psychiatric symptoms as well

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as relatives' life satisfaction were mediators in such association. To be specific, findings suggested that overall positive EE helped enhance while overall negative EE deteriorated PPD's life satisfaction,as well as PPD's empowerment level. Furthermore, relatives' overall positive EE was positively associated with PPD's psychiatric symptoms while the negative one had an adverse effect on their own life satisfaction. This differentiation power is noteworthy because it implied that positive EE and negative EE had distinct predictive power. In addition, psychiatric symptoms were found to be risk factors of empowerment as well as life satisfaction in PPD. All these suggested that relatives' expressed emotion, a family environment, played an important role in the psychosocial well-being of the people with psychotic disorders as well as the relatives themselves.

**Overall Comparison between FMSS & Self-report Models**

In order to assess the full construct of EE, a valid measure tapping both negative and positive EE was needed. In the present study, self-report EE measures as well as modified FMSS were used to assess the five components of EE and their internal consistencies as well as predictive validities were examined. Consistent with our hypothesis, results revealed that FMSS and self-report EE measures obtained acceptable reliabilities. In addition, it was found that the models of both EE measures had excellent goodness of model fit and had more or less the same

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predictive power of PPD's empowerment as well as life satisfaction. This seemed to support our hypothesis that self-report EE measures as well as the revised FMSS achieved a reasonable predictive validity. The only difference was that the self-report EE measures explained the relative's life satisfaction better while FMSS explained PPD's symptomatology better which was not expected.

Two reasons might be able to explain this phenomenon. First, the small sample size might affect the predictive power of two measures. Secondly, the mean duration of FMSS was 3 minutes 52 seconds, which was much shorter than it was supposed to be, might affect the stability of the results.

**Implications**

Unlike prior studies focusing on the relatives' negative EE and pessimistic aspects of psychotic disorders, the present study offered a new perspective towards the role of relatives in the recovery process of people with psychotic disorders. Specifically, the adverse and protective effects of emotion expressed by the relatives on their own psychological well-being and the empowerment as well as the life satisfaction in PPD signified the importance of family involvement in the recovery of those people. Furthermore, besides strengthening the family environment, the findings of the present study also suggested that empowering the internal resources in PPD could help them lead a satisfactory life even with the presence of psychiatric

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symptoms. Most importantly, these findings suggested that the PPD could take the responsibility in leading a satisfactory and meaningful life. In sum, investigating pro-social family factors and recovery outcomes offered a more positive role for family and PPD in the recovery process.

Moreover, previous studies have been collapsing the EE scores into two extremes (low and high negative EE). Not only that these labels were unable to provide sufficient information in transforming the findings into clinical use, they might stigmatize the relatives of PPD (Philips & Xiong, 1995). In order to provide more detailed and more constructive information about the relationship between expressed emotion and psychosocial well-being variables in PPD as well as in their relatives, continuous EE scores were used in the present study. Indeed, the findings with the continuous EE scores were more helpful in designing family psycho-education for psychotic disorders. For instance, the findings suggested that strengthening the communication skills of PPD's relatives, family strengths and the psychosocial well-being of PPD and their relatives can be enhanced. Specifically, this might be done by teaching the relatives how to express more positive and fewer negative behaviors and attitudes towards PPD. Furthermore, the distinct impact of positive EE on PPD's psychiatric symptoms and the effect of negative EE on relative's life satisfaction suggested that different dimension of EE should be

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emphasized while targeting those two psychosocial outcomes. These suggestions, especially those pertained to positive EE can potentially be adopted in the psycho-education model (Murray- Swank, Glynn, Cohen & Sherman, 2007) which has been developed to target negative EE only. In short, the findings provided ideas to design family intervention such as psycho-education which can potentially help enhance the recovery process of PPD as well as the psychological well-being of their relatives.

Other than targeting relatives' expressed emotion in family intervention, it is also crucial to target relatives' life satisfaction, empowerment as well as psychiatric symptoms in PPD in order to help them lead a more satisfactory life. For instance, recovery-oriented services such as peer support, which includes three forms: mutual support groups, consumer-run services, and the employment of consumers as providers within clinical and rehabilitative settings, have been developed to target empowerment in the people with severe mental illness. Indeed, according to the review study of Davidson and his colleagues (2006), it was found that peer support programs enhanced psychiatric symptoms, social network as well as quality of life in those people. In sum, besides providing approaches other than medication to treat PPD, these interventions will be especially beneficial to those people who suffer from this severe mental illness for life-time long as well as their caregivers. Most

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importantly, it is more favorable to lead a more satisfying and hopeful life than a hopeless life with fewer psychiatric symptoms for PPD. Therefore, future studies should focus on the development and evaluation of effectiveness of psycho-education for families who have PPD.

On the other hand, although findings showed that the revised FMSS and the self-report EE measures developed for the present study received good validities and reliabilities in assessing EE. However, the mean duration of revised FMSS audio clips was 3 minutes and 52 seconds, which was much shorter than it was supposed to be, suggesting that Hong Kong people might not be comfortable enough to talk about their relatives who had psychotic disorders in interviews. In addition, given FMSS requires training, this assessment tool can not be readily used by clinicians for mass screening. Therefore, self-report measures might be more culturally appropriate in assessing EE in the Chinese culture in future studies.

**Limitations and Future Direction**

Although the findings of this study provided a new perspective towards PPD and their relatives which can be transformed to clinical use, it suffered from two limitations. First of all, due to the difficulties in subject recruitment, the sample size of the present study was small. Given the discrimination against psychotic disorders (Lin & Lin, 1980; Philips et al., 2002) in the Chinese culture, their relatives were

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often time not willing to disclose or talk about those people with the others. Also, dyadic subject recruitment posed a difficulty in the recruitment process because it was not always successful to get the consent from both parties. Last but not least, the duration of assessment which took about an hour also posed a problem. Specifically, the participants, especially those waiting at the outpatient clinics, did not have sufficient time to finish the entire assessment before or after their medical appointment. The small sample size did not only hinder us from testing the covariates in the path analysis model, but it might have also affected the predictive power of expressed emotion as well as the reliability of the EE assessment measures in the present study. In order to solve these problems and to recruit a larger sample, PPD instead of the relatives might be asked to rate their perceived expressed emotion along with the other outcome variables in future studies.

Secondly, self-report measures as well as Five Minute Speech Sample were used instead of Camberwell Family Interview (Leff & Vaughn, 1985), which is the original EE measure to assess relatives' EE. Although the revised FMSS and the self-report EE measures developed for the present study achieved reasonable validities and reliabilities in assessing EE, the EE correlations between the two measures, especially the negative EE, were weak (range= .18-.48) while the EE correlations between CFI and FAS were between .10 and .66 (Kavangh et al., 1997). This implied that some EE

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aspects were tapped by one but not the other. Thus, they still need to be further validated in the future. Also, self-rated responses might be biased and suffer from social desirability problem. Since relatives reported their own EE, their responses might not be as precise. Therefore, it might be better to ask PPD about their relatives' EE in future studies.

All in all, given the seeming effect of EE, more emphasis should be put on the relationship between EE, well-being of the relatives as well as the recovery process of PPD. Furthermore, future studies should focus on the development and evaluation of effectiveness of psycho-education for families who have relatives with psychotic disorders. Last but not least, further validation for the revised FMSS as well as the newly-developed self-report EE assessment is warranted.

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**Appendix**

Definition of Each Sub-scale of Revised FMSS

| FMSS subscales | Definition | Examples |
|---|---|---|
| **Initial statement** | The initial statement is defined as the first complete thought or idea that the interviewee expresses about the PPD (can be any attributes of the PPD or relationship with the PPD). This statement is believed to be particularly important as it reflects the initial affective attitudes reported about the PPD.<br><br>**A neutral one** does not provide enough information to be scored as either positive or negative. It can also be purely factual in nature which does not describe how the respondent views or feels about the PPD.<br>**A negative one** is defined as either criticism, based either content or tone, a negative relationship statement OR statement concerning a negative attribute of the PPD (even if it was not accompanied by the tone of voice necessary for a criticism rating).<br>**A positive initial statement** satisfies the criterion for either a positive remark or a positive relationship statement. | **Neutral one-**<br>*Example: We get along okay. OR*<br>*He/she is 22 years old.*<br><br>**Positive initial statement-**<br>*Example: He/ she is a very nice person.*<br>*OR*<br>*My son and I have always gotten along well.*<br><br>**Negative one-**<br>*Example: He/she is very lazy.*<br>*OR*<br>*We can't have a conversation without having it end in an argument.* |
| **Critical Comments** | Critical comments should reflect obvious or extreme dislike or disapproval of any aspects of the PPDs. During the interview, the interviewee criticizes the aspects relating to the disorder or | *Example: He/she can never control him/herself.* |

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| | anything (i.e. behaviors or personality) about the PPD. | |
| **Hostility** | Hostility is similar to criticism. The only difference is that it's a more generalized critical attitude and disapproval of the PPD as a person. Rejection is a good indicator of hostility. A hostile statement reflects a negative attitude directed at the PPD because the interviewee feels that the disorder or behaviors of the PPD are controllable and that the PPD is choosing not to get better. A hostile interviewee often believes that the cause of many of the family's problems is the PPD's mental illness, whether they are or not. During the interview, the interviewee criticizes the PPD on some aspects, regardless of whether they are true or not. | *Example: Whatever he/she does makes me angry.* |
| **Self-sacrificing or devoted behaviors** | During the interview, the interviewee revealed that he/she had dramatic, exaggerated or overprotective behaviors toward the PPDs. | *Example: I always have insomnia because of him/her.* |
| **Emotional display during the interviews** | Emotional display refers to any emotion (positive or negative) expressed by the interviewee during the interview. | *a) cry*<br>*b) sigh* |
| **Excessive details about the past** | During the interview, the interviewee talked about the past events involving the PPD before the onset of their mental disorder. | *The interviewee talked about the "original" characteristics of the PPD.*<br><br>*The interviewee talked about the "past" quality of relationship with the PPD.* |

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| **Emotional Over-involvement Statements** | During the interview, the interviewee shows concern regarding the PPD or the disorder which induces stress in the interviewee him/herself. Most of the time, the stress experienced usually has an adverse impact on the psychosocial functioning of the interviewee him/herself. Emotionally over- involvement statements also include those reflect that the interviewee blames him/herself for the PPDs' disorders. | *Example: I am very worried that he/she cannot take care of him/herself after I die.* |
| **Warm actions** | The interviewee reveals that he/she talked in a warm tone or voice with the PPD or expressed love or warmth towards the PPD verbally or behaviorally or thought about how to improve their interaction with the PPD. | *Example: I always think about how to improve the relationship between us.*<br>*OR*<br>*I encourage him/her whenever he/she is upset.* |
| **Positive remarks** | Positive remarks can be any positive comments or praise regarding the PPD (i.e. behaviors or personality of the PPD). During the interview, the interviewee made positive comments on any aspects of the PPD. | *Example: He/she is very easy to get along with.* |
| **The quality of relationship** | A relationship statement is defined as a comment made about the relationship between the relative and the PPD that expresses a complete thought.<br>Each statement is either rated as strong positive, weak positive, weak negative, or strong negative. | **Strong positive-**<br>*Example: We get along very well.*<br>**Weak positive-**<br>*Example: We get along okay.*<br>**Weak negative-**<br>*Example: We had a little problems communicating lately.* |

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| | | **Strong negative-**<br>*Example: We can never talk to each other.*<br>**Neutral -**<br>*Example: We have no problems living together.* |
| **Warmth rating** | How much the interviewee expressed warmth while speaking about the PPD? | N/A |

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**References**

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Andresen, R., Caputi, P., & Oades, L. (2006). The Stages of recovery instrument: Development of a measure of recovery from serious mental illness. *Australian & New Zealand Journal of Psychiatry, 40*, 972-980,

Andreason, R., Oades, L., & Caputi, C. (2003). The experience of recovery from schizophrenia: towards an empirically validated stage model. *Australian and New Zealand Journal of Psychiatry, 37,* 586-594.

Arthur, D., & Nursing Research Group. (2002). The validity and reliability of the measurement of the concept "expressed emotion" in the family members and nurses of Hong Kong patients with schizophrenia. *International Journal of Mental Health Nursing,11,* 192- 198.

Asarnow, J. R., Goldstein, M., J., Tompson, M., & Guthrie, D. (1993). One-year outcomes of depressive disorders in child psychiatric in-patients: evaluation of the prognostic power of a brief measure of expressed emotion. *Journal of Child Psychology and Psychiatry, 34*(2), 129- 137.

Barrowclough, C., & Hooley, J. M. (2003). Attributions and expressed emotion: A review, *Clinical Psychology Review, 23,* 849–880.

Barrowclough, C., Tarrier, N., Humphreys, L., Ward, J., Gregg, L., & Bernice, A. (2003). Self-esteem in schizophrenia: relationships between self-evaluation, family attitudes, and symptomatology. *Journal of Abnormal Psychology, 112*(1), 92-99.

Bebbington, P. E., & Kuipers, E. (1995). Predicting relapse in schizophrenia. *International Journal of Mental Health, 24,* 7-22.

Bechdolf, A., Klosterkotter, J., Hambrecht, M., Knost, B., Kuntermann, C., Schiller, S., & Pukrop, R. (2003). Determinants of subjective quality of life in post acute patients with schizophrenia. *European Archives of Psychiatry and Clinical Neuroscience, 253,* 228-235.

Bedgregal, L., E., O'Connell, M., & Davidson, L. (2006). The recovery knowledge inventory: assessment of mental health staff knowledge and attitudes about recovery. *Psychiatric Rehabilitation Journal, 30*(2), 96-103.

Bentsen, H., Munkvold, O. G., Notland, T. H., Boye, B., Oskarsson, K. H., Uren, G., . . . Malt, U. E. (1998). Relatives' emotional warmth towards patients with schizophrenia or related psychoses: demographic and clinical predictors. *Acta Psychiatrica Scandinavica, 97,* 86-92.

Bertrando, P., Beltz, J., Bressi , C., Clerici, M., Farma, T., Invernizzi, G., & Cazzullo,

CC: Criticism
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EOI: Emotional over-involvement
PPD: People with psychotic disorders

C., L. (1992). Expressed emotion and schizophrenia in Italy. A study of an urban population. *British Journal of Psychiatry, 161*, 223- 239.

Bhugra, D., & McKenzie, K. (2003). Expressed emotion across cultures. *Advances in Psychiatric Treatment,* 9 (5), 342-348.

Bloch, S., Szmukler, G., Herrman, H. Benson, A., & Colussa, S. (1995). Counseling Caregivers of Relatives with Schizophrenia: Themes, Interventions, and Caveats. *Family Process, 34,* 413-425.

Boye, B., Bentsen, H., Notland, T., H., Munkvold, O., G., Lersbryggen, A., B., Oskarsson, K., H., . . . Malt, U., F. (1999).What predicts the course of expressed emotion in relatives of patients with schizophrenia or related psychoses? *Social psychiatry and psychiatric epidemiology, 34,* 35-43.

Breitborde, N. J. K., López, S. R., Chang, C., Kopelowicz, A., & Zarate, R. (2009). Emotional over-involvement can be deleterious for caregivers' health. *Social Psychiatry Psychiatric Epidemiology, 44*(9), 716-723.

Brown, G. W., Birley, J. L. T, & Wing, J. K. (1972). Influence of family life on the course of schizophrenia disorders: a replication. *British Journal of Psychiatry, 121,* 241-258.

Browne, S., Roe, M., Lane, A., Gervin, M, Morris, M., Kinsella, A., . . . O'Callaghan, E. (1996). Quality of life in schizophrenia: relationship to sociodemographic factors, symptomatology and tardive dyskinesia. *Acta Psychiatrica Scandinavica, 94,*118-124.

Buckley, P. F., & Stahl, S. M. (2007). Pharmacological treatment of negative symptoms of schizophrenia: Therapeutic opportunity or Cul-de-sac? *Acta Psychiatrica Scandinavica, 115,* 93-100.

Bureau of Labor Statistics. (2010). Earnings by education, labor force statistics from the current population survey. Retrieved May 25, 2010, from U.S. Department of Labor Web site: http://www.bls.gov/news.release/pdf/wkyeng.pdf

Butzlaff, R. L., & Hooley, J. M. (1998). Expressed emotion and psychiatric relapse. *Archives of General Psychiatry, 55*, 547-52.

Castelein, S., Van Der Gagg, M., Bruggeman, R., Van Busschbach, J. T., & Wiersma, D. (2008). Measuring empowerment among people with psychotic disorders: A comparison of three instruments, *Psychiatric Services, 59*(11).

Cohen, J. (1960) A coefficient of agreement for nominal scales. Education and *Psychological Measurement, 20*, 37-46.

Colenda, C.C., & Hamer, R. M. (1989). First admission young adult patients to a state hospital: relative risk for rapid readmission. *Psychiatric Quarterly, 60*(3), 227–236.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Corrigan, P. W. (2006). Impact of consumer-operated services on empowerment and recovery of people with psychiatric disabilities. *Psychiatric Services, 57*(10), 1493- 1496.

Davidson, L. (2003). *Living outside mental illness: qualitative studies of recovery in schizophrenia* (1st ed.). NY: New York University Press.

Davidson, L. (2010, February). *Designing policies to foster community integration for people in recovery - the role of lifelong learning* [PowerPoint slides]. Paper presented at Lifelong Learning and Empowerment in Mental Health, Paris, France. Retrieved from http://www.entermentalhealth.net/EMILIA_2/Final_conference/Larry_Davidson.pdf

Davidson, L., Chinman, M., Kloos, B., Weingarten, R., Stayner, D., & Tebes, J. K. (2006). Peer Support Among Individuals With Severe Mental Illness: A Review of the Evidence. *Clinical Psychology: Science and Practice, 6*(2), 165 – 187.

Davidson, L. O' Connell, M., Tondora, J., Lawless, M., & Evans, A. C. (2005). Recovery in serious mental illness: a new wine or just a new bottle? *Professional Psychology, Research & Practice, 36*(5), 480-487

Davis, D. J., & Schultz, C. L. (1998). Grief, parenting, and schizophrenia. *Social Science & Medicine, 46*(3), 369–379.

Deegan, P. (1997). Recovery and empowerment for people with psychiatric disabilities. *Social work in health care, 15,* 11-24.

Dickerson, F. B., Ringel, N. B., & Parente, F. (1998). Subjective quality of life in out-patients with schizophrenia: Clinical and utilization correlates. *Acta Psychiatrica Scandinavica, 98,* 124- 127.

Diener, E., Emmons, R., Larsen, R., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49,* 71-75.

Earnst, K. S., & Kring, A. M. (1997). Construct validity of negative symptoms: an empirical and conceptual review. *Clinical Psychology Review, 17,* 167- 189.

Eisen, S. V., Gerena, M., Ranganathan, G., Esch, D., & Idiculla, T. (2006). Reliability and Validity of the BASIS-24 Mental Health Survey for Whites, African-Americans, and Latinos. *The Journal of Behavioral Health Services & Research, 33*(3), 304-323.

Eklund, M., Backstrom, M., & Hansson, L. (2003). Personality and selfvariables: Important determinants of subjective quality of life in schizophrenia out-patients. *Acta Psychiatrica Scandinavica, 108,* 134-143.

Frese, F. J. (1998). Advocacy, recovery, and the challenges of consumerism for schizophrenia. T*he Psychiatric Clinics of North America, 21,* 233–249.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Friis, S., Hauff, E., Island, T. K., Lorentzen, S., Melle, I., & Vaglum, P. (1991). The Ulleval acute ward follow-up study: a personal 7-year follow-up of patients with functional psychosis admitted to the acute ward of a catchment area. *Psychopathology, 24*(5), 316–327.

Frone, M.R., Russell M., & Cooper, M.L (1992). Antecedents and outcomes of work-family conflict: Testing a model of the work-family interface. *Journal of Applied Psychology, 77*(1), 65-78.

Gauda, J., Brekke, J. S., Floyd, R., & Barbour, J. (2009). The relationships among perceived criticism, family contact, and consumer clinical and psychosocial functioning fro African- American consumers with schizophrenia. *Community Mental Health Journal, 45,* 106- 116.

Hashemi, A. H., & Cochrane, R. (1999). Expressed emotion and schizophrenia: a review of studies across cultures. *International Review of Psychiatry, 11*, 219-224.

Heine S. J. (2001). Self as cultural product: an examination of East Asian and North American selves. *Journal of Personality, 60* (6), 881- 906.

Hooley, J. M. (1998). Expressed emotion and locus of control. *Journal of Nervous and Mental Disease,* 186, 374- 378.

Hsu. (1995). Family therapy for the Chinese: problems and strategies. In T. Y. Lin, W. S. Tseng & E. K. Yeh (Eds.), *Chinese societies and mental health* (pp. 295-307). Hong Kong: Oxford Press.

Humbeeck, G. V., Audenhove, V., Storms, G., De Hert, M., Pieters, G., Vertommen, H., . . . Heyrman, J. (2004). Expressed emotion in the client-professional dyad: A comparison of three expressed emotion instruments. E*uropean Journal of Psychological Assessment, 20* (4), 237–246.

Ivanovic, M., Vuletic, C., & Bebbington, P. (1994). Expressed emotion in the families of patients with schizophrenia and its influence on the course of illness. *Social Psychiatry and Psychiatric Epidemiology, 29*, 61-65.

Jarbin, H., Grawe, R.W., & Hansson, K. (2000). Expressed emotion and prediction of relapse in adolescents with psychotic disorders. *Nord Journal of Psychiatry, 54,* 201-205.

Jenkins, J. H. (1992). Too close for comfort: schizophrenia and emotional over involvement among Mexicano families. In A. D. Gaines (Ed.), *Ethnopsychiatry: the cultural construction of professional and folk psychiatries* (pp 203- 221). Albany: State University of New York Press.

Jenkins, J. H., & Karno, M. (1992). The meaning of expressed emotion: theorectical issues raised by cross-cultural research. *American Journal of Psychiatry, 149,*

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
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9-21.

Kanter, R.M.(1977). *Work and family life in the United States: A critical review of agenda for research and policy*. New York: Russell Sage Foundation.

Katschnig, H. (1997). How useful is the concept of quality of life in psychiatry. In H., Katschnig, H., Freeman, & N. Sartorius (Eds.), *Quality of life in mental disorders.* New York: Wiley.

Katsuki, F., Goto, M., & Someya, T. (2005). A study of emotional attitude of psychiatric nurses: Reliability and validity of the Nurse Attitude Scale. *International Journal of Mental Health Nursing, 14,* 265–270.

Kavanagh, D. J. (1992). Recent developments in expressed emotion in schizophrenia. *British Journal of Psychiatry, 160,* 601.

Kavanagh, D. J., O' Halloran, P., Manicavasagar, V., Clark, D., Piatkowska, O., Tennant, C., & Rosen, A. (1997). The family attitude scale: reliability and validity of a new scale for measuring the emotional climate of families. *Psychiatry Research, 70*, 185-195.

King, S., & Dixon, M. J. (1996). The influence of expressed emotion, family dynamics, and symptom type on the social adjustment of schizophrenic young adults. *Archives of General Psychiatry, 53* (12), 1098-1104.

Kopelowicz, A., Lopez, S. R., Zarate, R., O'Brien, M., Gordon, J., Chang, C., Gonzalez- Smith, V. (2006). Expressed emotion and family interactions in Mexican- Americans with schizophrenia. *Journal of Nervous and Mental Disease, 194,* 330-334.

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33,* 159- 174.

Leeb, B., Hahlweg, K., Goldstein, M. J., Feinstein, E., Mueleer, U., Dose, M., & Magana-Amato, A. (1991). Cross-national reliability, concurrent validity, and stability of a brief method for assessing expressed emotion. *Psychiatry Research, 39,* 25-31.

Leff, J., & Vaughn, C. (1985). *Expressed Emotion in Families.* New York: Guilford.

Leff, J., Wig, N. N., Bedi, H., Menon, D. K., Kuipers, L., Korten, A., . . . Jablensky, A. (1990). Relatives' expressed emotion and the course of schizophrenia in Chandigarh: a two-year follow-up of a first-contact sample. *British Journal of Psychiatry, 156,* 351-356.

Leff, J, Wig, N. N., Ghosh, A., Bedi, H., Menon, D. K., Kuipers, L., . . . Sartorius, N. (1987). Influence of relatives' expressed emotion on the course of schizophrenia in Chandigarh. *British Journal of Psychiatry, 151*, 166-173.

Lehman, A. F. (1997). Instruments for measuring quality of life in mental illness. In H.

CC: Criticism
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EOI: Emotional over-involvement
PPD: People with psychotic disorders

Katschnig, H. Freeman, & N. Sartorius, (Eds.), *Quality of life in mental disorders*. New York: Wiley.

Li, Z., & Arthur, D. (2005). A study of three measures of expressed emotion in a sample of Chinese families of a person with schizophrenia. *Journal of Psychiatric and Mental Health Nursing, 12,* 431-438.

Lin, T. Y., & Lin, M. C. (1980). Love, denial and rejection: responses of Chinese families to mental illness. In A. Kleinman & T. Y. Lin (Eds.), *Normal and Abnormal Behavior in Chinese Culture* (pp. 387- 401). Boston, MA: D. Reidel.

Lopez, S. R., Polo, A. J., Karno, M., Hipke, K. N., Jenkins, J. H., & Vaughn, C. (2004). Ethnicity, expressed emotion, attributions, and course of schizophrenia: family warmth matters. *Journal of Abnormal Psychology, 113*(3), 428-439.

Lopez, S. R., Garcia, J. R., Ullman, J. B., Kopelowicz, A., Jenkins, J., Breitborde, N. J. K., & Placencia, P. (2009). Cultural variability in the manifestation of expressed emotion. *Family Process, 48*(2), 179-194.

Magana ,A. B., Goldstein, M., Karno, M., Miklowitz, D., Jenkins, J., & Falloon, I. R. (1986). A brief method for assessing expressed emotion in relatives of psychiatric patients. *Psychiatry Research, 17*, 203–212.

Marom, S., Munitz, H., Jones, P. B., Weizman, A., & Hermesh, H. (2005). Familial expressed emotion: outcome and course of Israeli patients with schizophrenia. *Schizophrenia Bulletin, 28*(4), 731- 743.

Marom, S., Munitz, H., Jones, P. B., Weizman, A., & Hermesh, H. (2005). Expressed emotion and relevance to rehospitalization: over 7 years. *Schizophrenia Bulletin, 31*(3), 751.

McFarlane, W. R. (1994). Multiple- family groups and psychoeducation in the treatment of schizophrenia. *New directions for mental health services* (pp. 13-22). Jossey-Bass Inc.

McFarlane, W. R. (2002). *Multifamily groups in the treatment of severe psychiatric disorders.* New York: Guilford.

McNab, C., Haslam, N., & Burnett, P. (2007). Expressed emotion, attributions, utility beliefs, and distress in parents of young people with first episode psychosis. *Psychiatry Research, 151*(1-2), 97-106.

Moller, H. J. (2007). Clinical evaluation of negative symptoms in schizophrenia. *European Psychiatry, 22,* 380- 386.

Moore, E., & Kuipers, L. (1999). The measurement of expressed emotion in relationships between staff and service users: the use of short speech samples. *British Journal of Clinical Psychology, 38,* 345- 356.

Muller, N. (2004). Mechanisms of relapse prevention in schizophrenia.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

*Pharmacopsychiatry, 37*(Suppl 2), 141–147.

Murray- Swank, A., Glynn, S., Cohen, A. N., Sherman, M. (2007). Family contact, experience of family relationships, and views about family involvement in treatment among VA consumers with serious mental illness. *Journal of Rehabilitation Research & Development, 44*(6), 801-812.

Neuchterlein, K. H. (1991). Vigilance in schizophrenia and related disorders. In: Steinhauer, S.R., Gruzelier, J. H., Zubin, J. (Eds.), *Handbook of Schizophrenia Neuropsychology, Psychophysiology, and Information Processing,* vol 5 (pp. 397- 443). New York: Elsevier.

Ng, R. M. K., Mui, J., Cheung, H. K., & Leung, S. P. (2001). Expressed emotion and relapse of schizophrenia in Hong Kong. *Hong Kong Journal of Psychiatry, 11*(1), 4-11.

O'Brien, M. P., Gordon, J. L., Bearden, C., E., Lopez, S. R., Kopelowicz, A., & Cannon, T. D. (2006). Positive family environment predicts improvement in symptoms and social functioning among adolescents at imminent risk for onset of psychosis. *Schizophrenia Research, 81,* 269– 275.

Parker, G., Fairley, M., Greenwood, J., Jurd, S. and Silove, D. (1982) Parental representations of schizophrenics and their association with the onset and course of schizophrenia. *British Journal of Psychiatry, 141,* 573-581.

Parker, G., & Hadzi-Pavlovic, D. (1995). The capacity of a measure of disability (the LSP) to predict hospital readmission in those with schizophrenia. *Psychological Medicine, 25*(1), 157–163.

Perrewé, P. L., & Hochwarter, W. A. (1999). Value attainment: an explanation for the negative effects of work-family conflict on job and life satisfaction. *Journal of Occupational Health Psychology, 4*(4), 318-326.

Philips, M. R.(2003). Strategies used by Chinese families coping with schizophrenia. In D. Davis & S. Harrell (Eds.), *Chinese Families in the Post- Mao Era* (pp. 277-306). Berkeley and Los Angeles: University of California Press.

Philips, M. R., Pearson, V., Li, F., Xu, M., & Yang, L. (2002). Stigma and expressed emotion: a study of people with schizophrenia and their family members in China. *British Journal of Psychiatry, 181,* 488- 493.

Phillips, M. R., & Xiong, W. (1995) Expressed emotion in mainland China: Chinese families with schizophrenic patients. *International Journal of Mental Health, 24,* 54-75.

Rappaport, J. (1987). Terms of empowerment or exemplars of prevention: toward a theory for community psychology. *American Journal of Community Psychology, 15*, 121-148.

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

Rogers, E. S., Chamberlin, J., Ellison, M. L., & Crean, T. (1997). A consumer-constructed scale to measure empowerment among users of mental health services. *Psychiatric Services, 48,* 1042- 1047.

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological wellbeing revisited. *Journal of Personality and Social Psychology, 69*, 719-727.

Seeman, M. (1998). The Family and Schizophrenia, *Human Medicine, 4*(2), 96-100.

Segal, S. P., Silverman, C., & Temkin, T. (1995). Measuring empowerment in client-run self-help agencies. *Community Mental Health Journal, 31*, 215- 227.

Silverstone, T., & Turner, P. (1995). *Drug treatment in psychiatry* (5th ed.). New York: Routledge.

Simon, B. (1990). Rethinking empowerment. *Journal of Progressive Human Services, 1*(1), 27-40.

Smith, M. J., & Greenberg, J. S. (2007). The effect of the quality of sibling relationships on the life satisfaction of adults with schizophrenia. *Psychiatric Services, 58*(9), 1222- 1224.

Substance Abuse and Mental Health Services Administration. (2005). *National Consensus Conference on mental health recovery and systems transformation.* Rockville, MD: Department of Health and Human Services.

Tanaka, S., Mino, Y., & Inoue, S. (1995). Expressed emotion and the course of schizophrenia in Japan. *British Journal of Psychiatry, 167*, 794- 798.

Test, M. A., Greenberg, J. S., Long, J. D., & Burke, S. S. (2005). Construct validity of a measure of subjective satisfaction with life of adults with serious mental illness. *Psychiatric Services, 56*(3), 292-300.

Tomes, N. (2006). The patient as a policy factor: A historical case study of the consumer/survivor movement in mental health. *Health Affairs, 3,* 720–729.

Tompson, M. C., Goldstein, M. J., Lebell, M. B., Mintz, L. I., Marder, S. R., & Mintz, J. (1995). Schizophrenic patients' perceptions of their relatives' attitudes. *Psychiatry Research, 57,* 155- 167.

Vaughn, C. E., & Leff, J. (1984). The measurement of expressed emotion in the families of psychiatric patients. *British Journal of Social Clinical Psychology, 15*, 157-165.

Wiedemann, G., Rayki, O., Feinstein, E., & Hahlweg, K. (2002).The Family Questionnaire: Development and validation of a new self-report scale for assessing expressed emotion. *Psychiatry Research, 109,* 265–279.

Wig, N. N., Menon, D. K., Bedi, H., Leff, J., Kuipers, L., Ghosh, A., . . . Jablensky, A. (1987). Distribution of expressed emotion components among relatives of schizophrenia patients in Aarhus and Chandigarh. *British Journal of Psychiatry,*

CC: Criticism
EE: Expressed emotion
EOI: Emotional over-involvement
PPD: People with psychotic disorders

*15,* 160-165.

Wong, D. (2000). Stress factors and mental health of caregivers with relatives suffering from schizophrenia in Hong Kong: Implications for culturally sensitive practices. *British Journal of Social Work, 30,* 365-382.

Xu M., Weng Y., Li D., & Guo F. (2000) Assessment of expressed emotion in family member of schizophrenic patients in Beijing. *Chinese Mental Health Journal, 14,* 161–163.

Yamada, S., & Suzuki, K. (2007). Application of Empowerment Scale to patients with schizophrenia: Japanese experience. *Psychiatry and Clinical Neurosciences, 61,* 594–601.

Yeo. (1997). Cognitive behavioral therapy: a cultural perspective. In B. Ferguson & D. Barnes (Eds.), *Perspectives on Transcultural Mental Health.* Sydney: Transcultural Mental Health Centre.

CC: Criticism
EE: Expressed emotion
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